# Addressing Return-to-Work Issues in the Federal Employees' Compensation Act with Administrative Data

April 26, 2013

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MATHEMATICA
Policy Research

## ABSTRACT

This study examines the characteristics of workers' compensation claims, case management indicators, and work outcomes using administrative data on the cases reported under the Federal Employees' Compensation Act (FECA) from 2005 to 2010. Findings from the research suggest three areas that might help inform the structure of benefits and services in workers compensation programs: (1) a small proportion of cases received a large percentage of the services provided; (2) occupational illness cases, which are caused by repeated exposure to conditions in the work environment, were more likely to be severe and to receive more benefits on average than traumatic injury cases, which are caused by an external force in a specific incident; and (3) injured workers who did not return to work quickly were unlikely to return to work within three years of the report date of the injury.

## ACKNOWLEDGMENTS

The authors wish to acknowledge the contributions and support of the U.S. Department of Labor (DOL) in this research. The advice and steadfast support of our contracting officer's representative, Celeste Richie of the Chief Evaluation Office (CEO), greatly enhanced our ability to execute the study by facilitating communication with DOL agencies. At the Office of Workers' Compensation Programs, Mark Bedont Jr., Jennifer Valdivieso, Alex Senecal, Antonio Rios, Douglas Fitzgerald, and Cecily Rayburn promptly answered our numerous data questions, provided comments on early drafts, and guided us through the complexities of the FECA program. Adriana Kugler, formerly chief economist at DOL, provided comments on the planned analysis and early results. Demetra Nightengale, Jonathan Simonetta, and other individuals within CEO provided comments at multiple stages of the study's development. We also wish to acknowledge the role of our technical working group in helping to shape the research. Les Boden and David Levine provided guidance and comments throughout the study's development. Finally, the authors would like to acknowledge several individuals within Mathematica who also contributed to the study. Karen Needels, Peter Schochet, and Heinrich Hock provided helpful input at various stages, and Bethany Simard provided outstanding programming assistance. Sheena Flowers helped prepare this report and John Kennedy provided editorial assistance.

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# EXECUTIVE SUMMARY

The Federal Employees' Compensation Act (FECA), like state workers' compensation programs, was developed to reduce some of the negative impacts of workplace injuries. It mandates the right of all civilian federal employees who have sustained workplace injuries to file a claim with the Office of Workers' Compensation Programs (OWCP) in the U.S. Department of Labor (DOL) to cover a portion of lost income and medical, vocational rehabilitation, and certain other costs associated with those injuries. FECA aims to help injured workers obtain proper medical care and identify suitable work if the employee is unable to perform the original job functions. Such features underscore the goal of speeding the return to work, whether modified work or the pre-injury job.

Although OWCP implements many of the promising practices identified as improving work outcomes, a quantitative study of FECA cases has the potential to provide valuable information that could further inform practices. This study, conducted for OWCP and sponsored by DOL's Chief Evaluation Office, uses administrative data from FECA cases from 2005 to 2010 to help document FECA policies, practices, and work outcomes and explore relationships among them. Furthermore, the large number of cases analyzed—close to one million—and the consistency of the case management procedures applied to FECA cases affords a unique opportunity for the research to provide insights into return-to-work issues that apply to virtually all workers' compensation programs and to systematically describe cases under FECA. The core of its analysis focuses on the following three research questions:

1. What are the characteristics and case management indicators of FECA cases and how do they vary with the year the case was reported?
2. How do characteristics vary across cases with different levels of injury severity?
3. How are work outcomes associated with case characteristics and case management indicators?

Findings from the research suggest three areas that might help inform the structure of benefits and services in workers' compensation programs: (1) the small proportion of cases with the most severe injuries (as indicated by OWCP's case management response) received substantially more disability compensation, medical benefits, and service referrals than cases with less severe injuries; (2) occupational illness cases, which are caused by repeated exposure to conditions in the work environment, were more likely to be severe and to receive more benefits on average than traumatic injury cases, which are caused by an external force in a specific incident; and (3) injured workers who did not return to work quickly (without wage loss relative to their pre-injury earnings) were unlikely to return to work within three years of the reported date of the injury or illness.

## A. Data and Methods

The analysis for this study relies primarily on administrative data collected by OWCP for the purpose of managing FECA cases. It generally focuses on cases for which OWCP first received a form applying for FECA benefits from January 1, 2005, to December 31, 2010. The analysis uses several key measures:

- Case characteristics and case management indicators. Mathematica developed variables containing information on demographics, pre-injury employment, and injury characteristics, as well as indicators of case management decisions and services received, to explain work outcomes.
- Four groups of cases to capture injury or illness severity. Mathematica defined these groups based on benefits received and decisions made that are likely to distinguish among levels of injury or illness severity.
- Two measures of work outcomes. These measures include whether the claimant had (1) a loss of wage earning capacity (LWEC), that is he or she was not working full-time or was working full time but earning less than before the injury or illness occurred at a particular point in time; and (2) accumulated any lost time from work in the first year.

Two key caveats to the research must be stated at the outset: (1) all analyses are grounded in correlations or descriptions, which means our analytic methods are not designed to measure causal effects of policies or procedures; and (2) the study is neither structured as nor intended to provide information that can be used as an evaluation of the impact of FECA work outcomes or OWCP processes or services.

## B. Overview of the Study's Findings

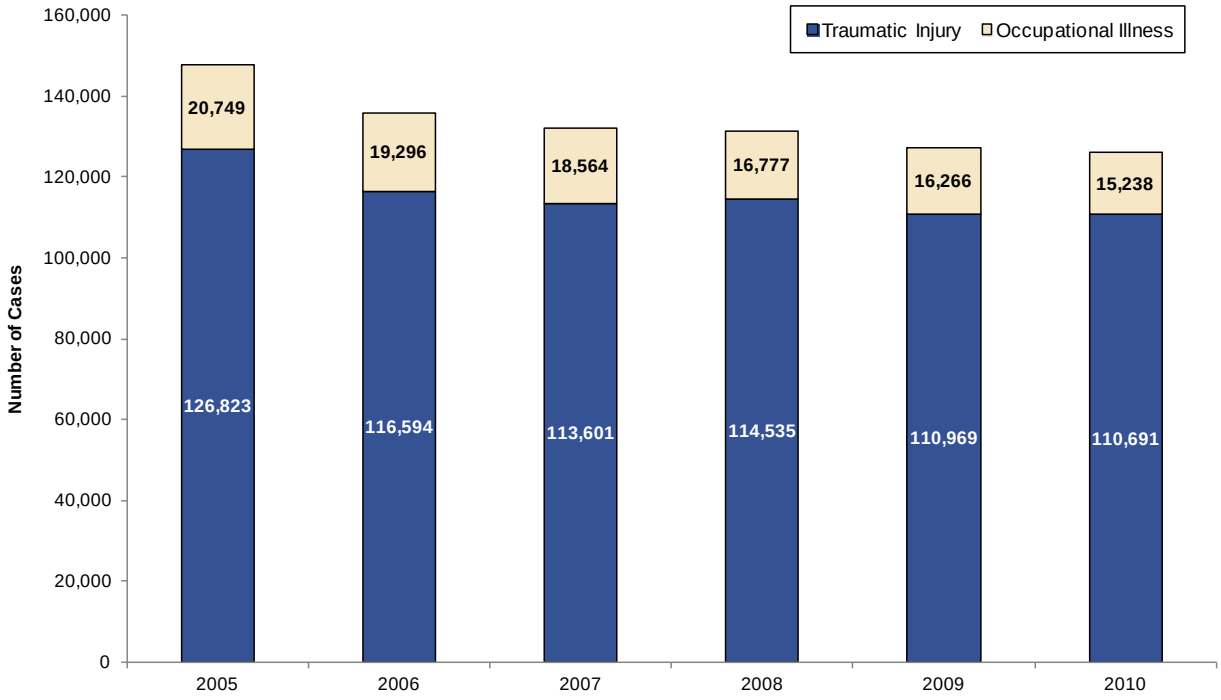
The analysis sequentially addresses each of the three key study research questions. In the following subsections, we summarize the results of the analysis that address each question.

### 1. What are the characteristics and case management indicators of FECA cases and how do they vary with the year the case was reported?

We examined the characteristics and management indicators of FECA cases reported from 2005 to 2010 using frequency distributions and incidence rates. Case characteristics are factors determined at or before the time of the injury, including claimant demographics, properties of the injury, and employment at the time of injury. Case management indicators describe events that OWCP makes throughout the life of a case, including medical and compensation benefits paid, services delivered to claimants, and procedures and decisions about managing the case. Throughout the report, we also distinguish between traumatic injury and occupational illness cases due to their substantially different natures. A traumatic injury is a wound or other condition caused by an external force in a specific incident, whereas an occupational illness is caused by repeated exposure to conditions in the work environment, such as systemic infection; repeated stress or strain; or exposure to toxins, poisons, or fumes. Our findings show the following:

- **From 2005 to 2010, most FECA cases reported to OWCP were traumatic injuries, more than 85 percent of the total in each year** (see Figure 1).

**Figure 1. Number of Cases, 2005 Through 2010**




Source: Table F.6, Appendix F.

- **The FECA caseload decreased by 13 percent for traumatic injuries and 27 percent for occupational illnesses from 2005 to 2010.** A total of 110,691 traumatic injury cases were reported in 2010, for an estimated incidence rate of 39 cases per 1,000 covered workers. This incidence rate reflected a substantial drop from 2005, when approximately 47 cases per 1,000 covered workers were reported. In contrast, 15,238 occupational illness cases were reported in 2010, or 5 cases per 1,000 covered workers. The occupational illness incidence rate also fell, from 8 cases per 1,000 covered workers in 2005.

- **Incidence rates varied substantially across federal departments.** The Department of Homeland Security and the Postal Service had the highest estimated incidence rates of traumatic injuries, 64 and 61 cases per 1,000 covered workers, respectively. The 2010 rate for the Department of Homeland Security reflected a drop of more than half from the 2005 rate of 135 cases per 1,000 covered workers. The Postal Service also had the highest incidence rate of occupational illnesses, 11 cases per 1,000 covered workers in 2010.

- **Cases reported to FECA represented a wide variety of case characteristics.** Some claimant age groups, occupations, district offices, and other characteristics were more common than others among the cases studied, but many of these differences are likely to reflect the population of workers covered by FECA and their geographic assignment among Division of Federal Employees' Compensation district offices rather than differences in the likelihood that particular groups of covered workers report cases.

- **Injury characteristics were notably different between traumatic injury and occupational illness cases.** Sprains and wounds were much more common among traumatic injury cases, and falls were the most common cause of injury. By contrast, handling mail or manual equipment were the most frequent causes of occupational illnesses.

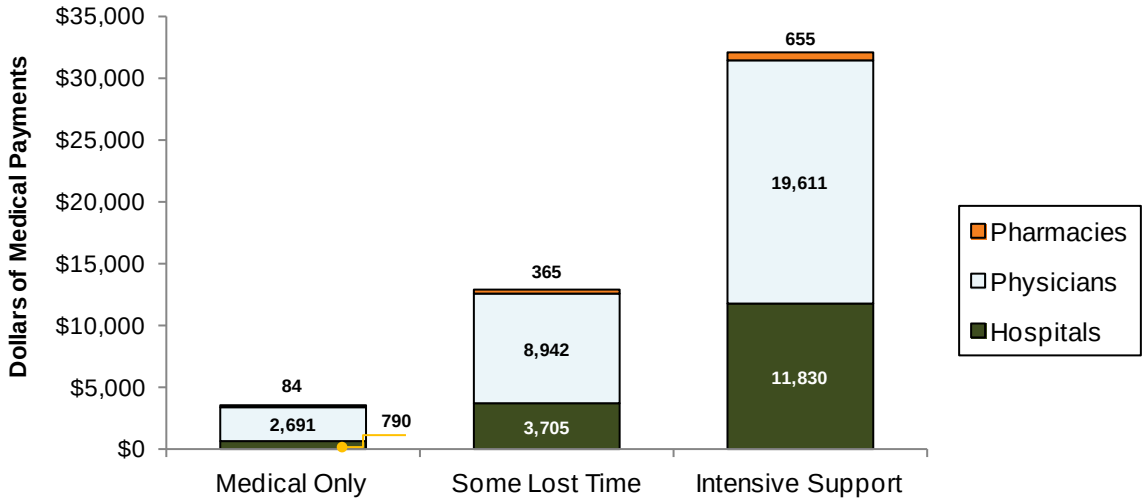
- **Most cases received few benefits and services in the first year after the injury or illness was reported, whereas a small proportion with severe injuries received substantial services.** A large majority (93 percent) of traumatic injury cases and 86 percent of occupational illness cases received no compensation for lost wages in the first year. Furthermore, although at least one physician visit was common among traumatic injury cases, other medical services were relatively uncommon. At least 70 percent of traumatic injury and occupational illness cases received no reimbursed hospital or pharmacy visits and fewer than 10 percent of cases received a referral to a field nurse, a registered nurse contracted by OWCP to attend medical appointments with the claimant and assess types of work suitable for him/her. However, of the cases that did receive compensation for lost time, about 40 percent received compensation for 120 calendar days or more.

## 2. How do characteristics vary across cases with different levels of injury severity?

Injury severity plays a critical role in determining the progression of a case and the services delivered to it. Claimants with more severe injuries are expected to receive more medical treatment and other services and to lose a greater amount of time from work. We explore how case characteristics and case management indicators varied across four mutually exclusive groups of cases. The groups are designed to capture different levels of injury severity and are defined based on benefits received and decisions made that are likely to distinguish among severity levels. *Denied* cases do not involve work-related injuries or illnesses of FECA-eligible employees and they fall outside of the purview of OWCP. *Medical only* cases represent relatively mild injuries and illnesses, given that they were eligible for FECA benefits, but the claimant did not receive any compensation for time lost from work due to his or her injury or illness (after 45 days for traumatic injury cases). Cases in the *some lost time* group received compensation for time lost from work, but the injuries were not so severe that OWCP identified the cases for intensive intervention through its Disability Management (DM) system. Finally, cases in the *intensive support* group include those whose claimants received compensation for time lost from work and which were designated for services through the DM system. When we examine characteristics of cases and management indicators across these groups we find the following:

- **The small proportion of cases that received the most medical care and compensation also received the greatest level of intervention from OWCP, as evidenced by service referrals.** Specifically, cases in the intensive support group received, on average, more than double the payments in compensation, physician services, and hospital services than cases in the some lost time group, which in turn received many more services than medical only cases (see Figure 2). These differences in case management indicators and severity are consistent with the DM system successfully identifying cases that require the most intensive benefits and services.

**Figure 2. Average Medical Payments and Case Severity**



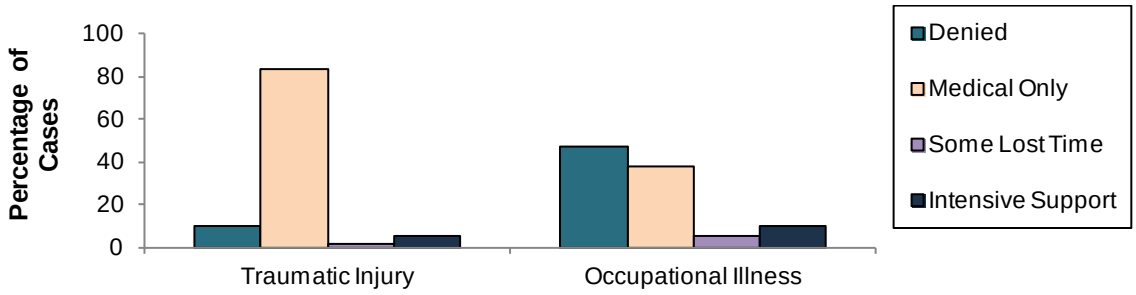

Source: OWCP administrative database.

- **The proportion of cases in the intensive support group increased during the study period, despite a decrease in the number of new traumatic injury and occupational illness cases from 2005 to 2010.** Although this trend could reflect an increase in case severity, it might reflect recent efforts by OWCP to place more cases in DM status as an administrative tool to ensure that proper treatment is provided.

- **Differences in case characteristics across groups were not nearly as stark as case management indicators.** Many case characteristics, such as claimant age, had relatively similar distributions across all four groups. One notable difference was in employing department, however. Postal Service cases were more likely than others to reach a greater level of severity and less likely to have benefits denied. Employees of the Postal Service reported 52 percent of traumatic injury cases in the intensive support group but only 37 percent in the denied group. More starkly, they reported 77 percent of occupational illness cases in the intensive support group but only 47 percent in the denied group.

- **Traumatic injury cases were more likely than occupational illness cases to fall into groups with lower severity** (Figure 3). Most traumatic injury cases fell into the medical only group, with a relatively small proportion in the groups indicating greater injury severity. Cases in the medical only group represented 83 percent of traumatic injury and 38 percent of occupational illness cases (although denied cases were more common among occupational illnesses cases). Further, a greater proportion of occupational illness cases are in the some lost time and intensive support groups than traumatic injury cases.

**Figure 3. Percentage of Cases at Each Level of Severity**




Source: OWCP administrative database.

- **The high proportion of occupational illness cases in the intensive support group explains why illness cases received more benefits than injury cases, on average.** Occupational illness cases were about twice as likely as traumatic injury cases to fall into the intensive support group, and nearly three times as likely to fall into the some lost time group. Because the average compensation and medical benefits paid were roughly comparable between occupational illness and traumatic injury cases within each of those groups, the higher average cost of occupational illness cases relative to traumatic injury cases appears to have been driven by the higher proportion of severe occupational illness cases.

### 3. How are work outcomes associated with case characteristics and case management indicators?

The analysis for this research question builds on our exploration of injury severity. Rather than comparing groups of cases identified by OWCP as requiring a particular set of services, it compares cases with different work outcomes. While services and outcomes could both serve as indicators of injury severity (and overlap), this analysis shifts the focus from OWCP's procedures for handling cases to the outcomes that the program ultimately aims to improve. The analysis can be used to identify types of cases that tend to realize poor work outcomes, highlighting areas for further research on improving work outcomes

We examine two work outcomes—lost time and LWEC—and how they varied with case characteristics and case management indicators. Lost time considers whether a claimant was not working full-time at a job offering his or her pre-injury wage for at least one day in the first year after the claim was reported. It looks at whether *any* lost time occurred during a period and enables us to track the proportion of cases that ever experienced time away from work. LWEC indicates whether the claimant was working full-time at a given point in time: one quarter, one year, two years, and three years after the date the injury was reported. It provides a snapshot of claimants who were not working at a particular point after the date the injury was reported and affords a comparison of whether claimants were out of full-time work at various follow-up points. We find the following:

- **About half of the traumatic injury cases that had any compensable lost time outside the continuation of pay period (45 days after the claim was reported) had extensive lost time.** Ten percent of traumatic injury cases had accumulated any days of lost time by the end of the third year, but about half of the lost time traumatic injury cases had 180 days or more of lost time. In fact, among cases with lost time, the average time away from work was nearly 300 calendar days.

- **Occupational illness cases had a greater proportion of cases with lost time (19 percent) than traumatic injury cases (10 percent) by the end of the third year after the case was reported.** However, a similar proportion of lost time cases in the two groups accumulated 180 calendar days or more of lost time.
- **The case characteristics available in the FECA administrative data had little predictive power in determining favorable work outcomes.** Case characteristics, such as claimant age and dependent status, department and occupation prior to injury, and the area and type of injury, explained only a small proportion of the variation in work outcomes one year after the case was reported. The characteristics most strongly related to lost time and LWEC at one year were employing department, injury characteristics, and district office.
- **A pattern of missing work soon after the injury or illness is reported and not returning to work quickly were strong indicators that a case would remain out of work after three years.** Although cases with less favorable work outcomes—presumably the most severe—tended to receive more services on average than those with better outcomes, characteristics and case management indicators at one year explain only a small proportion of the variation in work outcomes. Several findings support the pattern:

  - Only one-fifth of traumatic injury cases and one-third of occupational illness cases with LWEC at one year had returned to full-time work at the end of the third year.
  - The rate at which claimants return to work slowed over the first three years.
  - Traumatic injury claimants with extensive lost time typically accumulated this lost time starting soon after an injury was reported, with most reaching 180 calendar days in the first year.
  - Occupational illness cases with extensive lost time sometimes began to accumulate that lost time one year or more after the case was reported.

## C. Limitations

Our findings must be interpreted in the context of the available administrative data and methods used in the study. Although the data and analytic methods are capable of providing policy-relevant information related to the study's research questions, the administrative data collected for operational purposes have limitations for use in research and evaluation, as is typical in studies in which data are not collected specifically for research purposes.

In addition to the caveats that research findings cannot be interpreted causally or provide rigorous estimates of the impacts of OWCP's practices or the FECA program, we caution readers that we have limited information on some key measures, including injuries, illnesses, medical services, and background information on claimants. We also have no information on covered workers who do not file a claim. Further, we must make critical assumptions about key variables, including when a claimant returned to work; the accuracy of the results might rest with the accuracy of these inferences.

## D. Looking Forward

This study highlights the potential for using administrative data to explore policy-relevant issues on workers' compensations programs. As a study that creates and investigates an analytic data set based on FECA administrative data, it shows that data collected for the purpose of managing FECA cases can be useful for addressing important research questions about the FECA program and about workers' compensation in general. In its current form, the data—with further processing and analysis—could be used to answer questions to inform policies and practices about FECA and workers' compensation programs in general. Examples of such research include the following:

- How new benefits and services were provided over time and the how the timing of benefits and service referrals related to work outcomes
- Whether the provision of benefits and services varied by district office
- How compensation was distributed across claimants
- How employees in a specific department progressed through the system

Furthermore, an even richer set of analyses could be possible with some modifications to the data collection procedures. We recommend five steps that OWCP might take to improve its capacity in using its administrative data for research:

1. Collect data on work outcomes that take place during the first 45 days after a traumatic injury (the continuation of pay [COP] period).
2. Reduce the frequency of missing data on case characteristics.
3. Reduce the frequency of missing data on case events.
4. Adopt standard and precise definitions of *employment and injury*.
5. Collect data on other factors that might affect work outcomes, such as demographic characteristics, employment conditions at the time of injury, pre-injury health, and availability of medical services through other channels.

## E. Conclusion

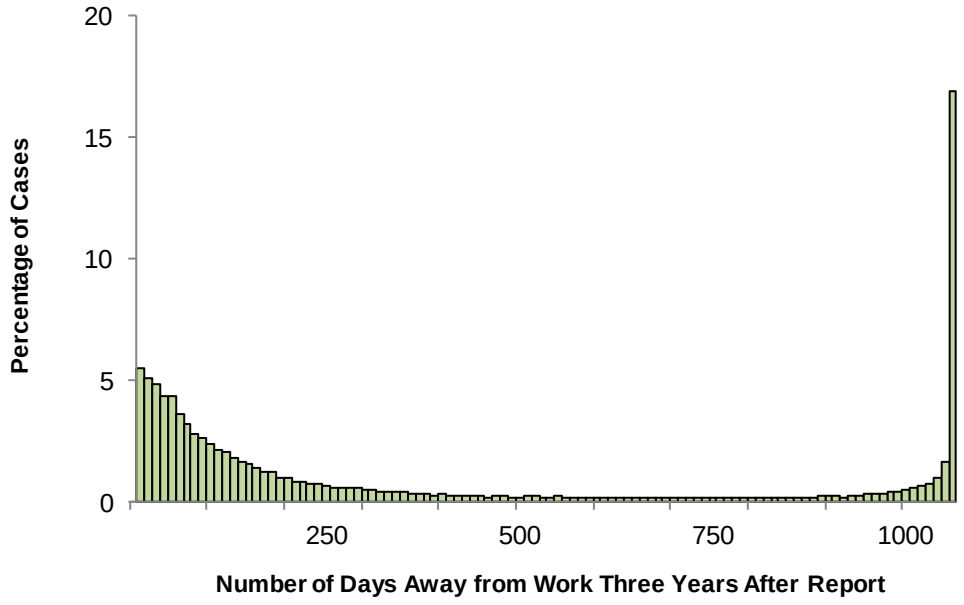
The rich administrative data and consistent case management procedures in the FECA program provide a unique opportunity to study return-to-work issues in workers' compensation programs. The data have enabled us to draw three insights about FECA activities that add to the general knowledge of workers' compensation programs:

1. **The small proportion of cases with the most severe injuries or illnesses received disproportionate amounts of services.** Fewer than 30 percent of traumatic injury or occupational illness cases received reimbursed hospital or pharmacy visits, and fewer than 10 percent of either type of case received a field nurse referral. However, among cases that received any compensation for lost wages, about 40 percent received compensation for missing 120 calendar days of work or more. Cases judged by OWCP to have the most severe injuries or illnesses received more than double (on average) the payments in compensation, physician services, and hospital services than cases that lost time from work but were less severe, which in turn received many more services than cases that did not lose any time from work.

2. **Occupational illness cases consumed a greater proportion of resources than traumatic injury cases because a larger proportion had more severe medical conditions and, hence, required substantial resources.** The vast majority of traumatic injury cases—83 percent—received only medical services and did not have compensation for lost wages. Indeed, only 7 percent of traumatic injury cases lost some time from work. In contrast, only 38 percent of occupational illness cases received only medical services. Occupational illness cases were about twice as likely as traumatic injury cases to lose time from work and receive intensive support and about three times as likely to lose time from work but not receive intensive support. Occupational illness cases were also more likely to have their claims denied, meaning that occupational illness cases that were not denied were even more likely to require higher levels of services.

3. **Injured workers who missed work early in the case and did not return to work quickly were unlikely to return to work within three years of the report date** (Figure 4). Program efforts to return cases to work as soon as possible might be a valuable area of focus for promoting improved longer-term employment outcomes for FECA cases. We note that cases with the least favorable work outcomes already received more medical services and service referrals, likely reflecting OWCP's response to the needs of the claimants. Still, case characteristics and case management indicators measured in the data showed relatively minor differences overall between cases with favorable versus unfavorable work outcomes, which suggests that aspects of injury severity not captured in the FECA administrative data also affect outcomes.

**Figure 4. Days of Time Away from Work for Cases that Lost Time from Work**




Source: OWCP administrative database.

Note: The maximum number of calendar days away from work is capped at approximately 1,096 days (the full three-year period). The cases at or near this maximum are those that began missing work at the time the case was reported or shortly afterward and remained out of work for at least three years. See Appendix B for more details.

Such insights derived from the administrative data on FECA claims can inform workers' compensation policy and programs and help target resources in a manner that increases the likelihood that a claimant returns to work quickly after suffering a workplace injury. These insights also highlight the potential to use administrative data to support continuous program improvement and to monitor program performance. As the first study on workers' compensation in this vein, our research helps showcase the promise of information that can be obtained from administrative data and highlights the value of continuing its use in the future.

# I. WORKPLACE INJURIES

Work-related injuries and illnesses can disrupt quality of life substantially. About 3.9 million American workers sustained a workplace injury in 2010, and 30 percent of those missed work as a result (Bureau of Labor Statistics [BLS] 2011a, 2011b).[1] Quality of life might be reduced for these workers in at least three critical ways: reduced disposable income, lifestyle changes with restrictions on activities, and diminished health. Medical expenses directly related to the injury and time away from work result in an unexpected loss of income. Injured workers might face a rehabilitation period that also restricts personal activities and overall lifestyle while potentially causing social and psychological harm (Banks 1995; Kirsh et al. 2012). In addition, 14 percent of workplace injuries result in more than 10 days away from work.[2] Such extended absences can reduce future job opportunities and affect mental health (Belton 2011).

Workplace injuries also adversely affect employers. Losing a worker temporarily or permanently disrupts productivity, especially when the employer has made an investment in training the employee to perform specific job functions.[3] Adjusting production decisions or recruiting and training new employees to replace injured workers can be time-consuming and costly (Leigh et al. 2000). Uncertainty over whether and when an injured employee will return to work further complicates staffing decisions. Finally, workplace injuries have the potential to harm the morale of remaining workers (Occupational Safety & Health Administration [OSHA] n.d.).

Workers' compensation programs were developed to reduce some of the negative impacts of workplace injuries. The Federal Employees' Compensation Act (FECA), which covers all civilian federal employees nationwide and abroad, and other workers' compensation programs mandate that employees sustaining workplace injuries may file claims to cover lost income, medical, vocational rehabilitation, and other costs associated with those injuries. Workers' compensation programs assist claimants in obtaining proper medical care and, in situations in which the injured employee is unable to perform his or her original job functions, identifying suitable work that is appropriate for the worker's condition and skills. Such features that aim to minimize unproductive time underscore the need to quickly return injured employees to work, whether modified work or the pre-injury job, and place it as a central goal of most workers' compensation programs.[4]

Workers' compensation programs face several barriers in their attempts to minimize the out-of-work time that is spent unproductively but could be spent productively. For one, the appropriate timing of return to work is not always clear, given its dependence on the severity of the injury and the required job functions. Poor communication among the claimant, physician, and employer can hinder identification of the best timing of return to work and can slow recovery efforts.

[1] These figures include private sector and state and local government employees.

[2] The 30 percent figure is based on the percentage of injured private sector and state and local government employees who miss days from work (BLS 2011a, 2011b) and the 14 percent figure is based on the 30 percent figure and on the fact that 45 percent of private sector employees with injuries requiring time away from work miss more than 10 days of work (BLS 2011b).

[3] Throughout this document, we use the terms *worker* and *employee* interchangeably.

[4] Throughout this document, we use *return to work* to refer to a return to the same job or a different job, including part-time or light-duty work that involves different job functions.

Furthermore, administrative requirements associated with the review of medical information (for example) might delay treatment or reemployment in some workers' compensation systems (Seabury et al. 2011). In addition, providing workers with compensation for lost wages generally introduces a disincentive for claimants to return to work. Given the importance of prompt return to work for the worker, employer, and insurers, a better understanding of the nature of workers' compensation claims and the factors associated with desirable work outcomes is valuable.

This research, sponsored by the Chief Evaluation Office (CEO) in the U.S. Department of Labor (DOL) and conducted for DOL's Office of Workers' Compensation Programs (OWCP), aims to provide a better understanding of return-to-work issues in workers' compensation programs in general, and to generate information that OWCP can use to better understand the nature of claims filed under FECA. It develops a framework for examining return-to-work issues and describes the characteristics of claims, decisions in managing claims, differences in levels of severity of reported injuries, and claimants' work outcomes. This analysis could inform the selection of features that workers' compensation programs might adopt to facilitate a faster return to work for claimants.

The study is grounded in analysis of administrative data of nearly one million cases reported under FECA from 2005 to 2010. Even though past research has examined the associations between characteristics of workers' compensation claims and work outcomes, the data for our analysis cover a large number of employees representing a wide variety of injuries, occupations, and locations, and the data contain information collected on claimants that is highly consistent over time. As a result, the research describes associations with return-to-work outcomes on a larger and broader sample than prior research, which has previously been undertaken on data using a small number of claims or a narrowly defined group. In addition, the study provides information directly applicable to FECA itself, as it provides a systematic description of FECA claimants and their return-to-work outcomes. Past research on FECA has been limited to qualitative studies or studies of claimants in a particular federal department.

The remainder of this chapter provides a general description of workers' compensation programs, the need for this study, and the structure of this report.

## A. Workplace Injuries and Workers' Compensation Programs

Workers' compensation programs offer a safety net to workers who are injured or become ill and to the survivors of workers who die in the course of their jobs. All 50 states, the District of Columbia, and the federal government operate workers' compensation programs, which guarantee injured workers or their survivors medical and indemnity benefits in exchange for forfeiture of the right to sue their employers if they are injured on the job (Sengupta et al. 2012; Neumark 2005). In 2010, workers' compensation programs covered more than 124 million workers, and these programs paid approximately $57.5 million in medical and cash benefits (Sengupta et al. 2012). Workers' compensation was the first form of government-sponsored social insurance in the United States. The federal government enacted FECA in 1908; most states followed by creating their own programs over the next 10 years (Sengupta et al. 2012).

Most workers' compensation programs are structured to involve three parties in each case, defined as a report of a single injury or incident: employer, worker, and third party. The employer is required to provide insurance that covers the costs of the treatment and to offer modified work to the injured worker if needed. The worker is expected to use benefits to return to work, either the original job or a modified version, as soon as his or her condition permits. In most state workers'

compensation programs, a third party—typically a private insurer—processes claims of injured workers. These insurers serve the employers and must abide by applicable state laws in making benefit payments for each case. However, they bear the direct cost of benefits paid to claimants, leaving them with an incentive to minimize the total benefits paid while operating within state laws. In the national FECA program, OWCP serves as the third-party claims processor, although it does not necessarily bear the cost of benefits paid to claimants.

## 1. Eligibility and Coverage

Many workers' compensation programs distinguish between injuries and illnesses. Injuries are generally caused by an external force, including stress, and arise from a specific event or incident. Illnesses, on the other hand, are caused by repeated exposure to conditions of the work environment and arise from a systemic infection; continued or repeated stress or strain; or exposure to toxins, poisons, or fumes. For instance, FECA defines traumatic injuries as injuries that occur from an event or series of events in a single work day; conversely, occupational illnesses develop over more than one day.[5]

Workers' compensation covers fatal and nonfatal injuries and illnesses that occur during the course of an employee performing his or her job. Near-universal coverage of workers is a general principle of workers' compensation systems (Szymendera 2011). In 2010, the National Academy of Social Insurance estimated that workers' compensation programs covered more than 97 percent of unemployment insurance-covered workers (Sengupta et al. 2012). All states, except Texas, and the District of Columbia require most employers to provide workers' compensation coverage (Sengupta et al. 2012).[6] Coverage generally includes injuries occurring at a single moment or over a longer period that occur at a work site (Szymendera 2011; Seabury et al. 2011).

Still, state legislation passed in the 1990s tightened the requirements for receiving workers' compensation benefits. So-called aggravation laws eliminated or reduced the compensation for aggravation of a preexisting condition or for a condition related to the aging process, making it harder for workers to file claims in many states (Boden and Ruser 2003). Similarly, FECA excludes certain types of workplace injuries from coverage. It does not cover workplace injuries due to either willful misconduct or intention to harm oneself or another person, to injuries due to an employee's being intoxicated, or claims filed later than three years after either the injury or the time a worker became reasonably aware that the workplace environment caused the disability (Szymendera 2011).

## 2. Benefits

Workers' compensation programs cover the cost of medical care for eligible injuries or illnesses, provide cash payments to compensate disabled employees for earnings losses that result from their

[5] Other workers' compensation programs use different categories of injuries and illnesses, so statistics for FECA are not directly comparable to these programs.

[6] Texas allows employers to choose whether to provide workers' compensation or settle work-related injury claims through lawsuits. State laws vary in the types of employers exempted from mandatory participation in workers' compensation (Sengupta et al. 2012). Some states exempt employers in certain industries from mandatory coverage and 15 states exempt very small employers (three to five employees). In addition, railroad employees engaged in interstate commerce and U.S. Merchant Marines have benefit plans that cover disabilities whether or not they are work-related (Sengupta and Reno 2007).

injuries, and offer vocational rehabilitation and other services that promote the return to work (Neumark 2005; Sengupta et al. 2012). Medical providers play a central role in determining benefits by assessing if workers have recovered as much as possible from the injury or illness and can return to work, and case limitations to the type of work (Seabury et al. 2011; Belton 2011).[7] Injured workers are not necessarily eligible for all benefits: for instance, a worker who needs medical treatment but is able to continue working despite his or her condition will receive medical benefits but not compensation for lost wages.

**Medical benefits.** In both state programs and FECA, workers' compensation covers all costs for medical care associated with the covered injury, including necessary treatments, procedures, and medications. Some states and FECA also cover costs associated with travelling to receive medical care (Szymendera 2011). Many workers' compensation cases are medical only—that is, cases that have no compensable lost time from work and receive only medical benefits (Sengupta et al. 2012).

**Compensation for lost wages (disability benefits).** After a waiting period typically lasting three to seven days, workers whose injuries or illnesses still prevent them from working may receive cash benefits, on either a temporary or permanent (ongoing) basis. Benefits are generally based on (but are less than) the wages lost during time missed from work due to the injury. These workers' injuries can be either total or partial, with *partial disability* referring to an injury or illness that does not entirely preclude the ability to work, whereas *totally disabled* workers cannot work (Szymendera 2011). Temporary total disability benefits are typically available to workers who miss more than three days of work due to a workplace injury or illness. Most workers fully recover and return to work, after which their benefits end. If a worker returns to work before fully recovering—which often means that he or she has restricted duties and lower pay—he or she can receive temporary partial disability benefits covering part of the difference in pay in most states (Sengupta et al. 2012).

**Services promoting return to work.** Most workers' compensation programs, including FECA, cover rehabilitation and training benefits for those workers unable to return to their pre-injury work.[8] In Wisconsin, for example, the Division of Vocational Rehabilitation is responsible for restoring injured workers to pre-injury earning capacity if a worker's injury prevents him or her from performing his or her pre-injury work (Belton 2011). In California, workers injured before 2004 and unable to return to their previous jobs are eligible to receive placement training services and monetary benefits from vocational rehabilitation, with workers who reached maximum medical improvement eligible for a vocational rehabilitation maintenance allowance. A voucher for educational or training services for workers unable to return to work within 60 days of reaching the maximum medical improvement benefits replaced the vocational rehabilitation allowance in 2004 (Seabury et al. 2011).

[7] The role of medical providers in determining benefits varies across programs. Some programs enable medical providers to terminate benefits unilaterally, others provide injured workers with recourse if they disagree with a provider's decision (Belton 2011). Because medical providers play an important role in determining workers' disability benefits, the choice of a medical care provider is a contentious issue and several states passed laws shifting the power to choose a provider from the worker to the employer in the 1990s (Boden and Ruser 2003).

[8] Some states, including Pennsylvania, do not provide vocational rehabilitation benefits (Belton 2011).

### 3. Work Outcomes

Workers' compensation programs place a high priority on helping claimants return to work as soon as feasible after an injury. Although many claimants resume their normal jobs with little or no recovery time, others require substantial assistance in returning to work. Two broad types of factors might explain some of these differences in work outcomes: case characteristics and case management indicators. Case characteristics are factors determined at or before the time of the injury and include claimant demographics, properties of the injury, and employment at the time of injury. Case management indicators describe events that third parties initiate throughout the life of a case, including medical and compensation benefits paid, services delivered to claimants, and procedures and decisions about managing the case. Understanding the case characteristics and management indicators associated with work outcomes has the potential to aid in the design and administration of workers' compensation programs that are more effective at promoting better work outcomes.

Previous research has identified some associations of case characteristics and management indicators with work outcomes in specific settings. In some programs, men lost time more often than women, but women with lost time experienced longer disability durations (Breslin 2003; Boden and Galizzi 2011; Cheadle et al.1994). Similarly, older workers sustaining injuries and losing time tended to remain out of work longer than their younger counterparts (Cheadle et al. 1994). In some settings, workers in physically demanding jobs were more likely than those in sedentary jobs to sustain injuries leading to lost time and were less likely to return to work after losing time (Breslin et al. 2003; Cheadle et al. 1994; Seabury and McLaren 2010; Johnson and Ondrich 1990).

Previous research has also identified promising methods of promoting return to work. Accommodation-based approaches, which focus on modifying the work environment to enable an injured worker to perform the same or a different job in the same firm, were associated with shorter duration of disability among cases with lost time in some settings (Seabury et al. 2011; McLaren et al. 2010; Franche et al. 2005). Some workplace interventions are designed to ensure that injured workers receive care quickly (for example, an on-site clinic). Outreach programs for injured workers (for example, early contact between the employer and worker or the assignment of a return-to-work coordinator) were also associated with shorter disability durations among claimants with compensable injuries (Seabury et al. 2011; Franche et al. 2005; Bernacki et al. 2003). Policies and procedures that affect the incentives of the injured worker (for example, termination of benefits upon a physician's determination that the worker has recovered) and employer (for example, penalties on employers that fail to rehire a disabled worker) are also believed to promote return to work (Belton 2011; Seabury et al. 2011).

## B. Need for this Study

A better understanding of the nature of workers' compensation claims and the factors associated with return to work fills an important gap in the knowledge about these programs. Past research has often examined qualitative evidence on the challenges faced by workers compensation programs. For example, previous analyses of FECA have been limited to qualitative studies that do not examine return-to-work outcomes (SRA n.d.; SRA 2011) and research conducted by employing agencies seeking to reduce the financial costs of compensation (Bowes 2003). Relatively few studies of any workers' compensation program used claims data for a more quantitative analysis, particularly with respect to the factors associated with successful and prompt return to work. Instead, quantitative research on the return to work has tended to (1) focus narrowly on a particular group of workers, such as those with a specific injury (Franche et al. 2005) or in a specific occupation (Liao et

al. 2001; van der Naalt et al. 1999); (2) use clinical trials with a small sample that is likely to differ from a broader population (MacKenzie et al. 1987); or (3) focus on employees of private firms who live in a specific state (Cheadle et al. 1994; Seabury et al. 2011).

This study provides a comprehensive analysis of workers' compensation systems by using administrative data on FECA cases to quantitatively address return-to-work issues and systematically describe cases under FECA. The large number of cases analyzed—close to one million—and the consistency of the case management procedures applied to FECA cases afford a unique opportunity to provide insights into return-to-work issues that apply to virtually all workers' compensation programs while providing OWCP with a description of the cases it handles.

## C. Structure of this Report

The remainder of the main body of the report is organized as follows. Chapter II provides an overview of FECA and the study. Chapter III describes characteristics and management indicators of FECA cases. Chapter IV provides an analysis of groups of cases expected to have different levels of severity. Chapter V analyzes the factors associated with lost time and work outcomes in FECA cases. Finally, Chapter VI concludes with a summary and discussion of the findings.

The report includes a series of appendices that supplement the main text. Appendix A describes the construction of the OWCP administrative database, which is the basis of most analysis used in this research. Appendix B details the definition of each analytic variable. Appendix C defines terms used in this study, by FECA administration, and in workers' compensation programs in general. Appendix D provides a technical description of the analytic methods used in the study. Appendix E outlines challenges in using FECA administrative data for analytic purposes and proposes a series of steps that might facilitate future research using the data systems. Appendix F contains tables of data descriptions and analyses that support the findings described in Chapters III through V.

# II. OVERVIEW OF FECA AND THIS STUDY

Because FECA shares many similarities with state workers' compensation programs, it becomes an excellent case study for informing policy about return-to-work issues in workers' compensation programs in addition to providing useful descriptions of the universe of FECA claims. This chapter provides an overview of FECA and of the study. The first section describes the FECA benefits provided to eligible injured workers and the policies and procedures developed by OWCP to manage claims. The second section describes the research questions addressed and the data and methods used to conduct the analysis, as well as a description of the study's limitations.

## A. The Federal Employees' Compensation Act

FECA provides workers' compensation coverage to all civilian employees of the United States government, except those paid from nonappropriated funds (DOL 2002).[9] It is the only recourse for covered employees for a work-related injury or illness. Injured workers[10] receive coverage regardless of job tenure or the type of position held, with probationary, temporary, and term employees covered on the same basis as permanent employees. Part-time, seasonal, and intermittent employees are also covered. Coverage extends to all kinds of injuries, including diseases, if the injury is causally related to the employee's work duties or occurs while on duty at work, traveling for work, or on a break at the workplace. The injury need not be caused by willful negligence of the employing department. Coverage includes existing conditions if the employment aggravated, accelerated, or precipitated the injury or illness.

### 1. Benefits

Similar to other workers' compensation programs, covered injured workers are eligible to receive medical treatment and monetary compensation for the loss of wage-earning capacity (LWEC), or inability to achieve pre-injury earnings. These benefits, specified in the FECA law, depend on how the injury or illness affects the employee's ability to perform job functions required of the position held at the time of the injury. Determination of benefits is made on medical evidence of the cause of the injury and the employee's ability to work, as well as evidence on the time, place, and manner of the injury. The employing agency is ultimately responsible for the costs of all benefits for which OWCP staff determine the claimant is eligible.[11] Claimants can be required to visit a second-opinion physician, who provides further medical information to establish the extent to which the work-related injury caused the condition. Injured workers could be entitled to one or more of the following types of benefits:

[9] Special legislation provides coverage to Peace Corps and VISTA volunteers; federal petit or grand jurors; volunteer members of the Civil Air Patrol; Reserve Officer Training Corps Cadets; Job Corps, Neighborhood Youth Corps, and Youth Conservation Corps enrollees; and nonfederal law enforcement officers under certain circumstances involving crimes against the United States.

[10] Throughout the document, we use the term *injury* to refer to a traumatic injury or an occupational disease or illness, though we distinguish between the two when they are handled differently.

[11] OWCP initially pays the costs of the benefits and then is reimbursed annually from each employing agency.

- **Medical treatment.** All injured workers are eligible to receive medical treatment from their first-choice physicians for injuries related to work. Individuals are entitled to continue receiving necessary treatment as long as the conditions from the work-related injury persist. FECA also covers medical treatment for recurring injuries or illnesses caused by work.
- **Continuation of pay (COP).** Employees who experience a traumatic work-related injury and are unable to return to their pre-injury job because of the nature of the injury are eligible to continue receiving their normal pay from their employing agency for up to 45 days. The COP period is a similar benefit to compensation for lost wages in other workers' compensation programs, but it is distinguished in FECA because it is administered and paid for by the employing agency rather than by OWCP.
- **Compensation for lost wages.** An employee unable to return to the pre-injury job because of a work-related injury is usually eligible to receive compensation for lost wages. The compensation rate is equal to two-thirds of the pre-injury pay rate for those unable to do any work, (analogous to total disability benefits in other workers' compensation programs). Employees who can return to part-time, lighter-duty, or other work at a lower pay rate receive two-thirds of the difference in pay (analogous to partial disability benefits).[12] The compensation begins after the COP period (if any) and a three-day waiting period ends.[13] Individuals can continue to receive compensation as long as they are unable to return to a job that pays at least as much as their pre-injury job, but compensation might be terminated if they refuse suitable work, do not cooperate, or retire.
- **Schedule payments.** An employee who experiences the permanent loss of specified parts or functions of the body is eligible to receive recurring payments for a fixed length of time related to the employee's pre-injury pay rate and the nature of the loss.
- **Death benefits.** Spouses and dependent children of workers who are killed by a workplace injury may receive recurring compensation payments whose amount and duration depend on the relationships and ages of the family members.

## 2. Role of OWCP

OWCP was established to administer FECA claims, but the agency is also charged with promoting better work outcomes among claimants. Each FECA claim is handled in one of 12 district offices to ensure that all claimants are paid benefits in accordance with the law. OWCP has established a series of procedures to manage the claims process. In addition to ensuring accurate and timely provision of benefits, the claims management process is designed to minimize unproductive time. To the extent allowed by the injury or illness, OWCP staff members provide claimants who have lost time with services aimed at promoting recovery and return to work.

[12] Claimants who are married or have at least one dependent child receive three-fourths of their pre-injury pay rate or of the difference in pay rates.

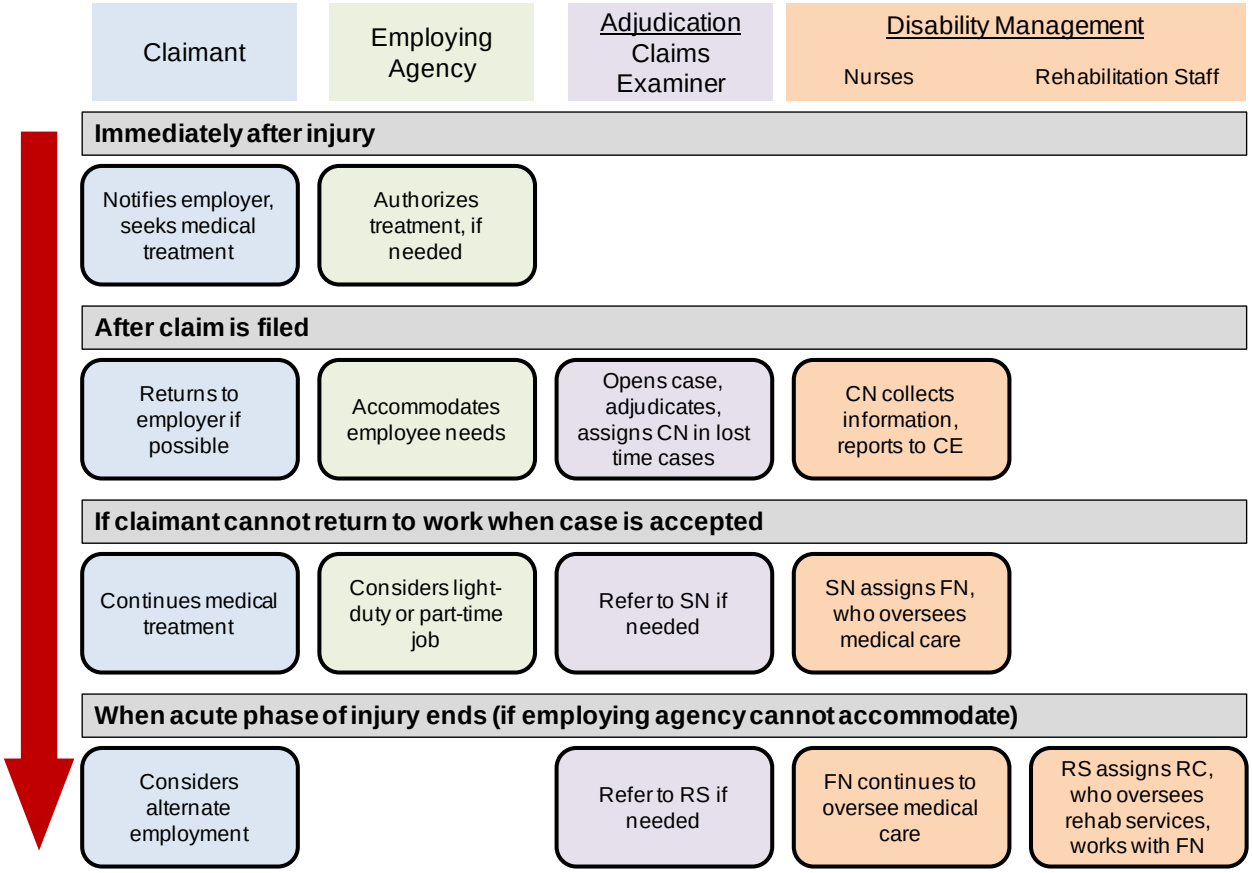
[13] The waiting period is not required for cases of permanent disability or when the disability exceeds 14 days.

### a. Procedures

FECA coverage is designed as a return-to-work program. An injured worker is expected to receive necessary medical treatment and return to the previous job if and when it is possible. The employing agency is encouraged to offer suitable light-duty or part-time work if the worker's condition precludes immediate return to the same position. Workers can be denied benefits if they refuse an offer of work determined to be suitable on the basis of medical evidence.

The federal program is administered in national and district offices by OWCP's Division of Federal Employees' Compensation. OWCP has established administrative procedures for determining the benefits received by covered employees and managing cases (DOL 2012). The procedures are intended to form an integrated approach to providing treatment and helping claimants with lost time return to work. The system is designed to provide claimants with benefits and services appropriate for the type and severity of the injury. Some claimants will receive only basic services, whereas others will have more intensive interaction with OWCP staff. Figure II.1 outlines the process by which injured workers claim medical and compensation benefits provided by FECA, including intensive services that might not apply to claimants with lesser injuries.

**Figure II.1. Outline of Claim and Benefit Receipt Process**




Notes: This figure demonstrates a broad overview of the claims processing and disability management system for FECA cases and might not represent individual cases. In particular, steps lower in the figure are unlikely to be necessary for minor injuries.

CE = claims examiner; CN = continuation of pay nurse; FN = field nurse; RC = rehabilitation counselor; RS = rehabilitation specialist; SN = staff nurse.

A case begins when an injured worker who requires (or is expected to need) medical care or time away from work files a claim form with his or her employing department. The employing department forwards the claim to OWCP. A worker who needs immediate medical attention requests a written authorization from his or her supervisor to receive medical treatment; this authorization entitles the employee to receive treatment for the injury from a physician and guarantees that OWCP will reimburse the physician for treatment (DOL 2009). After the claim form is filed and a case is opened by an OWCP office, a claims examiner examines medical evidence from the attending physician and, potentially, statements from the employee and employing agency on the circumstances of the injury. Based on this information, the claims examiner determines the claimants' eligibility for further medical treatment and compensation, as well as the next steps that the case should follow (DOL 2012). Some claims are denied FECA benefits and these cases fall outside of OWCP's purview.

An employee who is deemed unable to return to work after the initial medical treatment and who experiences any lost production days will participate in follow-up procedures known collectively as the disability management (DM) system.[14] The DM system, which includes services to injured employees, such as assistance in finding proper medical care and suitable work, is unique to FECA in that all cases with disability are handled using consistent procedures.[15] The claimant is expected to participate in the DM services and to cooperate with efforts to identify suitable work. When feasible, the employing agency is encouraged to work with the claimant to identify suitable work and provide needed accommodations. If no suitable work is available at the employing agency, the DM system may identify suitable work at another federal agency or in the private sector. A variety of OWCP staff members can be called upon to facilitate throughout the DM process:[16]

- **COP nurse.** A COP nurse is assigned to the traumatic injury case automatically after the claimant has missed seven days of work. The COP nurse contacts the employee, employing agency, and medical provider to collect further information on the workers' needs; reports that information to the claims examiner; and provides suggestions for next steps. The COP nurse is a registered nurse (RN) working under contract for OWCP.
- **Staff nurse and field nurse.** If the claimant loses time from work or the claims examiner determines that the claimant would benefit from further assistance in receiving proper medical care, the claims examiner might refer the case to a staff nurse. The staff nurse, located in the district office, identifies and contracts with a field nurse in the workers' local area. The field nurse assigned to the case attends medical appointments with the claimant, works with medical providers to assess types of work suitable for the claimant, and works with the claimant's employing agency to find work the claimant can do within his or her medical restrictions. Both types of nurses are RNs; staff nurses are employees of OWCP, whereas field nurses work under contract with OWCP.

[14] Workers receiving COP but no compensation generally are not flagged by OWCP for active disability management. However, they might still be assigned to a COP nurse as described in the text.

[15] In contrast, state workers' compensation programs generally allow employers and insurers to decide whether and how to manage cases with lost time to speed return to work.

[16] More detail on the DM process is in Section 2-0600 of the FECA Procedure Manual (DOL 2012). Details on differences in the implementation of procedures across district offices are in SRA (n.d.).

- **Rehabilitation specialist and rehabilitation counselor.** If the claims examiner determines that the claimant would benefit from medical or vocational rehabilitation services, the claims examiner can refer the case to a rehabilitation specialist.[17] The rehabilitation specialist, located in the district office, identifies and contracts with a rehabilitation counselor in the worker's local area. The rehabilitation counselor assigned to the case assists the claimant in establishing a reemployment plan and arranges for testing, training, and accommodations that might benefit the claimant's employment outcomes. OWCP trains and certifies both the rehabilitation specialist and rehabilitation counselor.

The claims examiner selects these staff as appropriate to create an integrated approach to case management. A COP nurse is typically involved for only a short period at the beginning of the case; the involvement ends as soon as the relevant information has been gathered and reported to the claims examiner. The staff and field nurses usually become involved shortly after the COP nurse and are normally assigned to cases for an initial period of 120 days. This period can be extended if needed, but all nurse involvement in the case ends within 10 months in all except some cases of unusually severe injuries. The rehabilitation specialist and rehabilitation counselor normally become involved later in the case, but their efforts can occur simultaneously with the nurse intervention. The length of their involvement depends on the nature of the case. All staff involvement ends after the claimant has achieved maximum possible recovery and has returned to suitable work.

### b. Strategies for Handling Cases

OWCP has developed a variety of strategies for administering cases and promoting positive outcomes, in accordance with the substantial variation in severity of injuries. For cases expected to experience quick recoveries, benefits are primarily limited to medical services, with minimal case management required. More severe cases might require substantial services before the claimant is able to return to work, including medical treatment, assistance in identifying suitable work, or vocational rehabilitation.

Although OWCP determines the most appropriate services on a case-by-case basis, similar cases tend to receive similar services. Informally, FECA cases can be organized into groups based on the perceived severity of the injury, which in turn affects the services delivered and the OWCP staff involved in each case. Some cases involve relatively minor injuries needing medical benefits only. These cases require OWCP staff to ensure proper medical treatment, but no efforts are needed to assist the claimant in returning to work. Other cases have a minimal amount of lost time from work, perhaps due to a brief recovery period from the acute phase of the injury, but still do not require assistance in returning to their pre-injury employment. Still other cases involve injuries that OWCP expects to be sufficiently severe that the cases will have substantial lost time and require more intensive management of the disability, including assistance in returning to work.

One challenge OWCP faces in choosing the appropriate response to a case is that injury severity is difficult to measure and quantify. Although most workers' compensation programs collect data on the nature of the injury for each claim, indicators of its severity are generally crude. The

[17] Unlike medical treatment intended to relieve the effects of the injury, medical rehabilitation consists of services intended to restore functions enabling the claimant to work, such as physical therapy or occupational rehabilitation.

severity of the injury also might not be apparent until key events, such as reporting lost time from work, have taken place. Accordingly, it would be useful to document the characteristics of cases most strongly associated with each of these groups.

### 3. Return-to-Work Issues in Workers' Compensation Programs

FECA, like other workers' compensation programs, emphasizes the importance of returning to work. Its provisions aim to provide needed medical care, compensation, and rehabilitation services to injured workers to reduce the barriers that hinder the return to work. FECA's approach is consistent with the Protecting Our Workers and Ensuring Reemployment (POWER) Initiative, established by President Obama on July 19, 2010, which aims to improve workplace safety and reduce the financial costs related to on-the-job accidents. Under the POWER Initiative, OWCP is responsible for helping to meet benchmarks associated with reducing the hardships and financial costs of on-the-job injuries. OWCP works to achieve this goal by providing benefits to increase the speed at which injured employees recover and return to work (Solis 2010).

Other workers' compensation programs and previous research have explored methods of improving work outcomes (see Chapter I, Section A.3) and OWCP implements many of the promising practices identified. As examples, the field nurse in part plays the role of a return-to-work coordinator and works with the employer and worker to identify suitable work, including modified work if appropriate. Workers with injuries or illness receive compensation only if the attending physician determines that they are not able to return to work, so claimants are incentivized to return to work if able. Employing agencies ultimately bear the full cost of all FECA benefits paid on behalf of the claimant, so their financial incentive to return injured employees to work far exceeds incentives provided by the threat of penalties or increased insurance premiums believed to promote return to work in other workers' compensation programs. However, these FECA-specific procedures have received little attention in workers' compensation studies.

Still, several institutional factors might slow the return-to-work process for FECA claimants. As in other workers' compensation programs, compensation for time away from work produces an incentive for workers not to work. Many FECA claimants view the benefits as an entitlement program (SRA n.d.), which might influence their efforts to secure gainful employment. FECA compensation benefits are generous, possibly exceeding the worker's regular pay given their tax-free status, and compensation continues into retirement age, with a substantial fraction of compensation being paid to claimants older than 65 (Bowes 2003). These generous benefits, along with the lack of a waiting period[18] could incentivize claimants to collect benefits even if they are able to work. Furthermore, incentives for claims examiners might not align with OWCP incentives (SRA n.d.). For example, some claims examiners reported managing very large caseloads but receiving no reward for adjudicating claims quickly. These claims examiners might have difficulty triaging cases and providing appropriate services to each worker in a timely manner. A focus by district offices on numerical goals for improving specific outcomes can have adverse effects on the provision of timely services to some groups of claimants. For example, claims examiners in some offices indicated that

[18] The waiting period is typically intended as a disincentive for speculative claims. Under current policy, occupational illness cases are subject to a three-day waiting period before compensation is received. Traumatic injury claimants generally may start collecting COP immediately. Postal Service workers must use annual leave for the first three missed days, although their leave is returned if the absence is longer than 14 days. In summary, many but not all FECA cases are eligible to receive some form of compensation with no waiting period.

claimants out of work for more than one year are a lower priority because they are not included in statistics on lost production days. Finally, stakeholders might not have sufficient incentives to minimize costs of benefits payments. OWCP's own administrative funding does not depend on case outcomes, and employing agencies might be discouraged from rehiring workers because employment costs are incurred immediately, whereas FECA costs are paid more than a year after they are incurred, and are paid with little scrutiny (Bowes 2003). In recent years, the Division of Federal Employees' Compensation has implemented procedural and practice changes intended as district office improvements that were recommended by the SRA and other previous independent studies.

Identifying areas in which procedures and policies are not fully aligned with OWCP's underlying goal of helping claimants return to work might suggest ways to improve employment outcomes. OWCP has stated (personal correspondence, February 24, 2012) that it implemented recommendations from SRA's qualitative study (n.d.) to improve the DM process. These recommendations focused on the nurse intervention stage by improving the processing of data and exchange of information between nurses and claims examiners. Measures of efficiency and staff opinions about the process improved after implementation of the recommended changes (SRA 2011).

## B. Overview of the Study

Research on workers' compensation programs leaves many unanswered questions of policy interest that would benefit from further study. Although many relevant questions are beyond the scope of a study grounded in analysis of FECA administrative data, this study takes two important steps toward addressing those unanswered questions. First, it adds to understanding of employment issues in workers' compensation programs in general. It examines issues important to all workers' compensation programs using a broad sample of workers across the United States and a data set not previously used for research. Second, it helps to document FECA policies, practices, and work outcomes and explore relationships among them. The findings can serve as a reference that could potentially help OWCP manage cases and promote more favorable employment outcomes.

FECA and its administrative data are appropriate for these goals. The program covers three million employees and uses consistent procedures for processing claims and providing services to claimants. Rich administrative data on all recorded cases of injury provide a unique opportunity to document the universe of injuries reported under FECA and to understand relationships among worker characteristics, the type and severity of the injury, services received, and employment outcomes. Such a large and consistent data set has not been used to address return-to-work issues for any workers' compensation program. Furthermore, findings from this study would be directly applicable to FECA itself and could identify actionable recommendations to improve the efficiency of this important federal program.

This study should be viewed as opening a door to future research. As the first study that creates and investigates an analytic data set based on FECA administrative data, it shows that data collected for the purpose of managing FECA cases are useful tools for addressing important research questions about the FECA program and about workers' compensation in general. Many questions not answered in this first study could be addressed through further processing and analysis of the administrative data, including subgroup analysis and examinations of additional case management indicators or outcomes. Furthermore, an even richer set of analyses could be possible with some modifications to the data collection procedures. Both of these areas of future work are discussed in Appendix E.

## 1. Research Questions

This study describes FECA cases reported from 2005 to 2010 and examines the relationships among case characteristics, management indicators, and work outcomes. Descriptions of case characteristics, their differences by report date, and characteristics of cases with different levels of injury severity provide a context for examining the relationship of case characteristics and case management indicators with work outcomes. Although identifying the causal effects of management indicators or other aspects of the case is beyond the scope of this study, an understanding of the relationships among these elements could help program administrators and policymakers recognize the needs of different types of cases. The study is structured to provide insights into these relationships by answering three research questions, addressed in the next three chapters.

**What are the characteristics and case management indicators of FECA cases, and how do they vary with the year the case was reported?**

A description of FECA cases provides a context for the remainder of the research questions. Chapter III describes the characteristics and management indicators (measured one year after the report date) of all FECA cases in the study, separately for traumatic injuries and occupational illnesses. It also examines differences in cases reported at different times in the study period. These descriptions enable readers to compare our sample of FECA cases with claims of other workers' compensation programs; they also provide OWCP with a succinct overview of the cases it manages.

**How do characteristics vary across cases with different levels of injury severity?**

Injury severity plays a critical role in determining the progression of a case and thus the services delivered to it. Although injury severity is not directly encoded in administrative data, indicators of the progression of a case and the OWCP staff involved can serve as a proxy. Chapter IV explores how case characteristics varied across four groups of cases that progressed to different points in the first year. The division of cases into mutually exclusive groups is designed to align with types of cases informally identified by OWCP administrators as requiring different types of management strategies. The organization of cases into four groups is also motivated by the wide range of case management indicators documented in Chapter III.

Focusing on these four groups provides a detailed look at the differences in cases eligible for different services by the nature of their injuries. As illustrated in Figure II.2, the first group is defined by the case being denied for all benefits, suggesting that the injury was not covered under FECA. Cases in each subsequent group receive a greater level of services that indicates increasing levels of injury severity: those receiving medical benefits only, those receiving some compensation, and those entering the DM system. More generally, each group is distinguished from the previous one by a case management indicator or outcome that suggests a particular course of action was warranted for the injury. Understanding the differences across the cases in these groups could highlight the needs of each, potentially helping OWCP manage its diverse caseload.

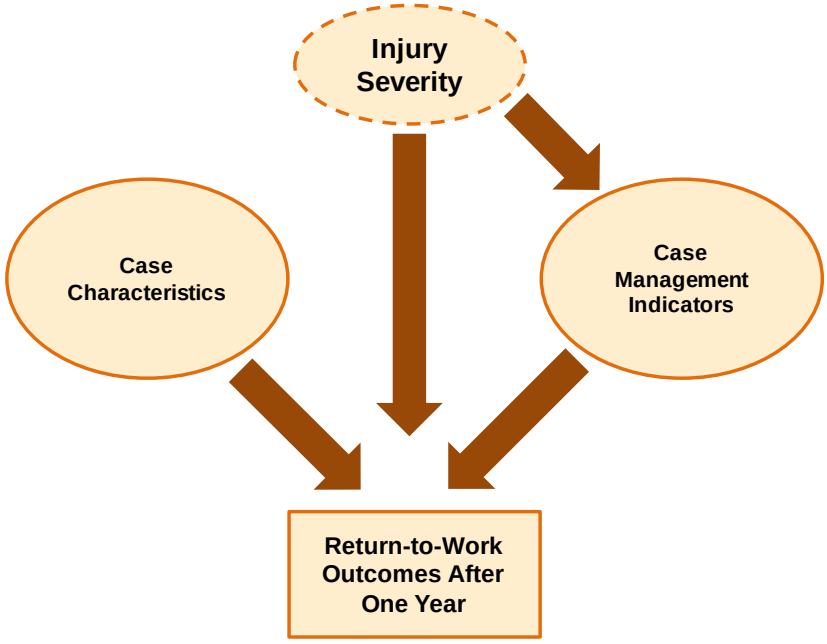
**Figure II.2. Capturing Severity of Injury**

**How are work outcomes associated with case characteristics and case management indicators?**

Although many cases involve minor injuries that do not result in missed work, other injuries are severe and require extensive recovery time. Chapter V analyzes the associations of work outcomes with case characteristics and management indicators, as indicated in Figure II.3. Documenting the case characteristics most strongly associated with work outcomes provides insights into why some cases have better outcomes than others. Some analyses in this chapter also explore associations between work outcomes and management indicators. As shown in Figure II.3, injury severity is likely to influence the observed relationship between outcomes and management indicators. In particular, more severe injuries are expected to have worse work outcomes and to receive more services, so associations between management indicators and work outcomes are more likely to reflect the relationships with injury severity than the effect of management indicators.

The analysis for this research question builds on Chapter IV's exploration of injury severity. Rather than comparing groups of cases identified by OWCP as requiring a particular set of services, Chapter V compares cases with different work outcomes. Although services and outcomes could both serve as indicators of injury severity (and overlap), this analysis shifts the focus from OWCP's procedures for handling cases to the outcomes that the program ultimately aims to improve. This analysis can be used to identify types of cases that tend to realize poor work outcomes, highlighting areas for further research on improving work outcomes.

**Figure II.3. Long-Term Work Outcomes for Workers**




## 2. Data and Samples

The analysis for this study relies primarily on administrative data collected by OWCP for the purpose of managing FECA cases. The detailed data on each case reported by a claimant enables a rich analysis of the sample of FECA cases. These data are supplemented by data from BLS to capture the unemployment rate in the claimant's local area. Each data source is processed and merged to form an analytic data set, which we call the OWCP administrative database. Appendix A provides details of the construction of this database.

### a. Data Constructs

The analysis addresses the research questions using three types of key constructs, summarized in Table II.1. The case characteristics examined include claimant demographics, characteristics of the claimant's home area, details of the employment at the time of injury, details of the injury, and the district office handling the case. These characteristics are used to describe groups of cases. The case management indicators include initial progress measures related to the adjudication of a case, compensation and medical benefits provided, and referrals by OWCP staff to return-to-work services. They can change throughout the life of a case, but are measured one year after the injury is reported for consistency throughout the study. Finally, work outcomes are measured at the first quarter after the injury is reported, then annually, up to three years.

**Table II.1. Definitions of Key Constructs**

| Construct | Measures |
|---|---|
| **Case Characteristics**<br>Traits of a case captured at the time the injury or illness is reported | *Demographics:* Gender, age, dependent status<br>*County Unemployment Rate*<br>*Pre-injury Employment:* Employing department,[a] occupation<br>*Injury Characteristics:* Nature, area, and cause of injury<br>*District Office:* OWCP district office to which the injury/illness was reported |
| **Case Management Indicators**<br>Measures of progress and decisions that OWCP makes about a case | *Initial Progress Measures:* Primary adjudication status, adjudication status at one year<br>*Compensation Benefits:* Days of compensation, amount of compensation paid to claimant<br>*Medical Benefits:* Hospital visits, physician visits, pharmacy visits (number of visits and average payments)<br>*Service Referrals:* DM system participation; days of field nurse involvement; COP nurse referral; vocational rehabilitation referral; second-opinion examination |
| Work Outcomes | *Outcomes:* Lost time, calendar days of lost time, LWEC |

[a] Although the employing agency pays for benefits during the COP period and might be considered the appropriate measure, the larger department unit is arguably a more appropriate descriptive measure in examining prevalence of injuries and illness.

The constructs are designed to facilitate an analysis that addresses each of the research questions. The report addresses the first research question by summarizing case characteristics and case management indicators. The second research question involves the same constructs, but the analysis also defines four groups of cases based on case management indicators. The third research question examines the associations of work outcomes (rather than service groups) with case characteristics and case management indicators. Appendix A describes how we constructed the OWCP administrative database, the data set used in the analysis; Appendix B describes how we measure each construct listed in Table II.1.

### b. Analytic Samples

The analyses conducted in this report use an individual case—rather than an individual claimant—as the level of analysis. The decision to use the case as the unit of analysis came about because case-level records were provided without claimant identification numbers. It is therefore

possible that claimants who reported more than one injury are included in the analysis more than once.[19] However, the case is arguably the most appropriate unit of analysis: an injury that results in multiple spells of disability is treated as a single case for data collection and disability management purposes, whereas a worker with more than one case has had multiple distinct injury or illness events that were adjudicated and managed separately by OWCP. Our analyses are thus consistent with the level of OWCP's case management procedures.

Mathematica obtained data extracts covering cases opened from January 1, 2005, through March 9, 2012. However, we focus on cases for which OWCP first received a form applying for FECA benefits from January 1, 2005, to December 31, 2010, so that enough time elapsed to observe work outcomes. For instance, we could not ascertain whether the employee involved in a case reported on March 1, 2012, was working without wage loss one year after the report date because the data extract does not include data one year after this report date. In addition, cases for which work outcomes were not relevant or could not be measured were excluded from analyses. These exclusions included cases that resulted in a fatality, were appealed, or did not meet other data quality checks described in Appendix A.

Each measure is captured at a particular time relative to the report date. Case characteristics are measured as of the report date.[20] Case management indicators are measured one year after the report date to ensure that they are observed over a consistent period and that sufficient time has elapsed for the case management events to occur. Work outcomes are measured at one quarter, one year, two years, and three years after the report date to provide a fuller picture of the evolution of case outcomes over time. For analyses of work outcomes measured at two or three years, the sample is further restricted to cases reported on or before December 31, 2008. This is necessary for the same reason as above: cases must be reported before this date to provide sufficient time to observe outcomes measured up to three years after the report date. In addition, some analyses are restricted to cases with a particular work outcome observed one year after the report date.

### 3. Analytic Methods

All of our analyses are grounded in correlations or descriptions, which means that factors not captured in our research design or analysis might underlie the relationships we uncover. Even though our multivariate analyses control for some of the observable characteristics in associations with work outcomes, the available data are limited and may not include a number of unobserved factors that might be correlated with outcomes or other measures. For example, a finding of positive associations between services provided by OWCP and individual's work outcomes could reflect the possibility that cases that with greater unobserved severity require more services and also have worse work outcomes. The analytic methods are not designed to measure causal effects of policies or procedures.

[19] Although our data do not enable us to assess the extent of multiple claims in our analysis, two other studies found that about one-third of claimants file a second claim within a few years, most second claims are for a distinct injury (Ruseckaite and Collie 2011; Gotz, Liu, and Galizzi 2000). These studies suggest that the standard error calculations for the analysis could ignore some correlation among the outcomes of individuals with multiple cases.

[20] OWCP's practice is to enter data on case characteristics at the time the injury is reported, but it is possible that some characteristics are updated at a later time, for example due to a correction.

We employ both univariate descriptive analyses in which we examine case characteristics and case management indicators one by one, as well as multivariate analyses in which we examine relationships between measures, holding constant the effects of others. Analyses are undertaken separately for traumatic injury and occupational illness cases[21] because the characteristics of and program services received by these two types of cases are substantively different. Appendix D provides details of the analytic methods used.

Our descriptive analysis uses tabulations and charts to examine characteristics of cases, case management indicators, and work outcomes. Statistically significant differences ($p \leq 0.05$) in characteristics between groups or across time periods (for example) are determined using a two-tailed t-test for indicator variables and a chi-squared test for categorical variables. Because of the large number of cases used in our analysis, small differences are statistically significant. We therefore typically focus discussion on characteristics accounting for at least 10 percent of cases (either traumatic injury or occupational illness) and only discuss differences between groups of cases that are meaningful—that is, those with at least 20 percent for a continuous variable and at least 5 percentage points for an indicator variable. To maintain a consistent flow in our discussion, we discuss results for traumatic injuries first, because they are the larger group of cases, and then discuss differences for occupational illnesses.

Our multivariate analysis uses ordinary least squares (OLS) to establish relationships that work outcomes have with case characteristics and case management indicators. The model estimates the association with case characteristics and management indicators to provide a sense of which cases were most likely to experience lost time or to return to work given their characteristics at the report date and how initial progress measures, benefits, and services might be associated with work outcomes, given the characteristics of cases.

## 4. Study Limitations

Although the data and analytic methods are capable of addressing the study's research questions, administrative data that are collected for operational purposes have limitations for use in research and evaluation. These limitations are common in studies that do not specifically collect data for research purposes. We will discuss these issues in detail in the report. Here, we highlight some of the limitations to the analysis that should be considered when reviewing the tables.

**Associations do not indicate causation.** As in other observational studies, our analysis does not allow for causal inferences. We cannot say, for example, that a referral to a field nurse increases or decreases the likelihood of returning to work. Although we can say that cases referred to a field nurse are more or less likely to return to work, the association might reflect injury severity or another unobservable factor that affects both whether a worker has a field nurse referral and

[21] We use *traumatic injury* and *occupational illness* when distinguishing between the two. For instance, "Half of traumatic injury cases and 30 percent of occupational illness cases …". We use *injury* or *injury or illness* interchangeably when referring to both when no distinction is needed. For instance, *injured worker, nature of injury, pre-injury employment,* and so on are all assumed to apply equally to traumatic injuries and occupational illnesses.

whether he or she returns to work. Methods of identifying causal effects of specific program elements were considered but ultimately judged to be infeasible for this study.[22]

**The study is not designed as an evaluation.** The study is structured to quantitatively address return-to-work issues and systematically describe cases under FECA. It is neither structured as nor provides the information that can be used as an evaluation of FECA work outcomes or OWCP processes or services. It should be considered a first step in understanding return to work among FECA cases, but a more targeted study and associated data collection effort would be required to evaluate specific components of the program.

**Assumptions are required for key variables.** The structure of the data dictated the need for certain assumptions to construct key analytic variables. Constructing variables to describe work outcomes required identifying the work status across the case's history. For example, we inferred each change in work status based on data originally intended to aid in providing claimants timely services and to ensure accurate compensation payments. The quality of the analytic variables relies on the accuracy of the inferences we had to make. In particular, if certain events—such as return to work—are not coded in the administrative data, our analysis will incorrectly infer that the claimant remained out of work. Furthermore, data on lost time during the COP period is not available because claimants receive wages directly from their employing agency during the COP period. FECA compensation records and DM tracking records therefore do not indicate how many days were lost from work at this time. Accordingly, lost time and other outcomes for traumatic injury cases do not count the first 45 days after the injury.

**Limited information on injuries, illnesses, and medical services is available.** Injury and illness information is collected for administrative purposes upon the initial report to OWCP, but more detailed information is obtained only when necessary for medical or case management reasons. Accordingly, we observe injury characteristics (for example, nature of injury, cause, and area of the body) recorded at the time of the initial report, but this information is not updated as the case progresses. Further, although these injury characteristics are systematically coded, they do not align with other standard systems for classifying injuries and do not provide all relevant information about the injury. For example, two cases might have very different levels of severity but still have injuries with the same reported nature, cause, and area of the body. Further, we do not have systematic and reliable measures of medical procedures delivered, specific medications prescribed, or the characteristics of the attending physician.[23] Instead, we have the cost of a medical benefit reimbursed through OWCP's bill payment system. Some medical services are provided directly by the employing agency, (such as through a health clinic) and these services are not recorded in the

[22] Data are not provided on reasons for nurse referral decisions and the timing of the end of nurse services, so that differences in outcomes across cases receiving different nurse services might reflect underlying differences in the cases rather than the effect of the services. Unique identifiers for claims examiners and other staff members are not available, precluding the possibility of examining effects of specific case personnel.

[23] Some medical procedure and prescription codes are available; however, the information is not provided systematically for all cases and is not coded in a format that can be translated into meaningful analytic variables.

administrative data. We also do not have any information on a claimant's health or medical services before the injury or illness.[24]

**We have access to only limited background information.** The OWCP administrative database has only limited information about the claimant. It contains some background information needed for administrative use, but some data are of limited research value and are not used in the analysis. For instance, the database records whether the claimant has dependents (which is required for the computation of compensation benefits), but not his or her marital status or household composition. Similarly, we know the claimant's gender, age, and employing agency, but we do not observe race, union status, or job tenure. Further, some data elements, such as wage and occupation at the time of injury, are recorded for only a subset of the sample for which this information is needed to manage the case, so we cannot use consistent measures of these data elements in the analysis. In particular, occupation is not provided for about 27 percent of the cases in the sample.

**We have no information on covered workers who do not file a claim.** OWCP collects detailed information on FECA claims after they are filed, but it does not collect data on all federal employees covered under FECA. Accordingly, the analysis is unable to compare workers who file a claim with those who do not, including injured workers who choose not to file a claim. For instance, we cannot say whether covered workers in a particular age group are more likely than others to file a FECA claim. Other federal agencies are likely to have detailed information on their employees, but these data might not be sufficient to determine FECA eligibility and are not readily linked to FECA claims. Such a data collection effort is beyond the scope of this study. Still, Chapter III compares the frequency of FECA cases in each employing department with an external source of information on total civilian employment to estimate of the incidence rate of cases by department and injury type.

**The analysis focuses on outcomes for only a three-year period.** The longest-term outcomes in this study focus on those that can be observed within three years after the date the injury or illness was reported. Focusing on outcomes during this period was necessary to eliminate data truncation issues that arise because many cases in the data set were open at the time the information was obtained, as Appendix A describes. The associations found in this study might not hold for work outcomes after three-years.

[24] We initially proposed to examine measures of access to medical care, such as data on health professional shortage areas from the Health Resources and Services Administration. However, the location information on these data is available only in a nonstandard format that is not readily linked to the claimant's zip code of residence.

# III. CHARACTERISTICS AND MANAGEMENT INDICATORS OF FECA CASES

This chapter summarizes the characteristics and management indicators of FECA cases reported from 2005 to 2010. Three types of analysis are used to achieve this goal. First, an analysis of the frequency of FECA cases and incidence rates among groups of workers provides a context for subsequent analysis by showing the size and scope of the FECA program. It examines the number of FECA cases and the size of the covered workforce and shows the frequency and incidence rates of both traumatic injury and occupational illness cases. The analysis shows a decreasing caseload during the period and notable differences in the incidence rates of cases across employing departments.

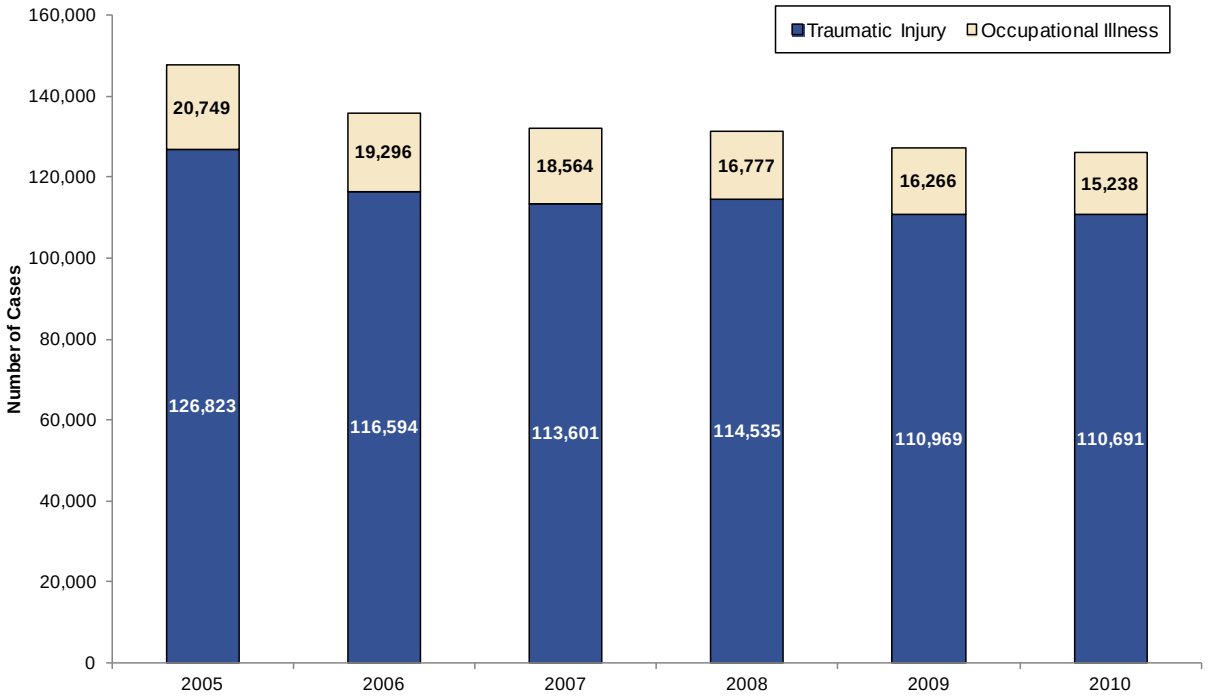
Second, an analysis of the characteristics of FECA cases from 2005 to 2010 provides a description of the types of FECA cases over the period. It highlights the breadth of cases processed for both injury types and the dramatic differences between traumatic injuries and occupational illnesses with respect to injury characteristics.

Third, an analysis of case management indicators from 2005 to 2010 provides an overview of the OWCP decisions made and the benefits and services delivered to claimants. It shows that most FECA cases require relatively few services, although a small fraction involves substantial intervention from OWCP.

## A. FECA Claims and Covered Workers

Figure III.1, which shows the number of traumatic injury and occupational illness cases reported to OWCP each year from 2005 to 2010, shows about a 15 percent decrease in FECA cases from 147,572 to 125,929 between 2005 and 2010. Traumatic injuries accounted for the majority of cases in each year: about 86 percent of cases in 2005 and 88 percent in 2010. The frequency of traumatic injury cases fell by 13 percent (from 126,823 to 110,691) from 2005 to 2010, while the frequency of occupational illness cases fell by 27 percent (from 20,811 to 15,258).

**Figure III.1. Number of Cases, 2005 Through 2010**




Source: Appendix F, Table F.6

Incidence rates also varied between traumatic injury and occupational illness cases. The incidence rate is the ratio of the number of traumatic injury or occupational illness cases reported from each department to an estimate of the number of covered employees in that department.[25] Comparing the incidence rate of FECA cases across employing departments and over time (Appendix F, Table F.1) provides a sense of the likelihood that a worker in a given department files a FECA claim. Such information could help to identify departments with high incidence rates or to set or evaluate goals for changes in injury rates over time.[26]

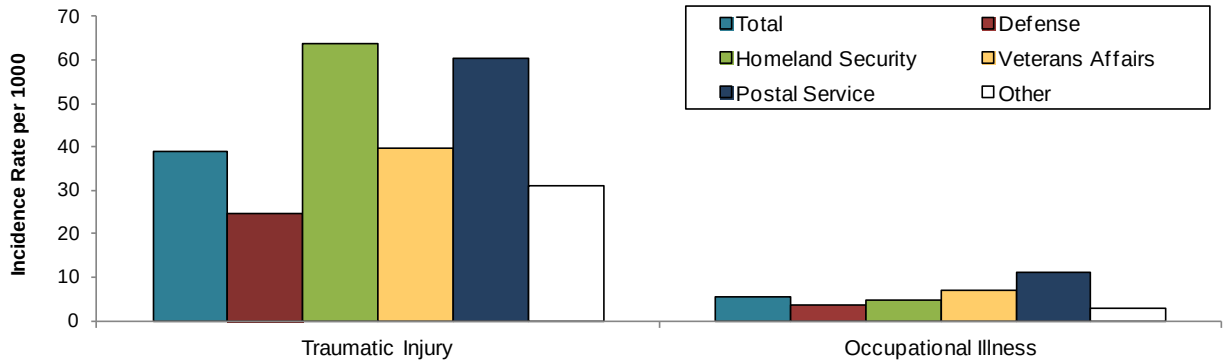
[25] Ideally, a description of the population of FECA cases would include a comparison of cases with the population of workers covered by FECA. Such a comparison would provide a picture of the types of workers more likely to file a claim than covered workers who do not file a claim. However, FECA data do not contain information on covered workers, only those who file claims. We therefore use civilian federal employment to approximate the number of workers covered by FECA, although some individuals, such as Peace Corps volunteers, are covered by FECA but are not counted as federal employees. Administrative data from other agencies might enable a more accurate analysis of the population of covered workers, but the data collection and matching effort is beyond the scope of this study.

[26] Similar comparisons across other groups of cases, separated by demographic characteristics, occupation, or other factors, are also potentially useful. However, data on the number of covered workers in each of the relevant categories are not readily available for the full sample of covered workers over the study period. Future research might pursue these data sources.

Overall incidence rates fell from 2005 to 2010, especially for occupational illnesses. Despite the drop in caseloads shown in Figure III.1, civilian federal employment actually increased slightly, from 2.7 million to 2.8 million (Appendix F, Table F.1). Accordingly, the estimated incidence rates of FECA cases decreased: traumatic injury rates dropped 17 percent from 47 to 39 cases per 1,000 employees; occupational illness rates dropped 30 percent from 8 to 5 cases per 1,000 employees.

As shown in Figure III.2, traumatic injury incidence rates were higher than occupational illness rates and varied substantially across the four departments with the largest number of FECA cases reported—Defense, Homeland Security, Veterans Affairs, and the Postal Service—and a composite category of all other departments. Although the Department of Homeland Security did not report the largest number of traumatic injury cases, it had the highest incidence rate at 64 cases per 1,000 employees in 2010, which was dramatically lower than its 2005 rate of 135 cases per 1,000 employees. The U.S. Postal Service reported more traumatic injury cases than any other department in both years, but its large number of employees made its incidence rate nearly equivalent to the Department of Homeland Security's rate in 2010 and half its rate in 2005 at 67 cases per 1,000 employees. The Departments of Defense and Veterans Affairs had below-average traumatic injury incidence rates in 2010, 25 and 40 cases per 1,000 employees, respectively, which are similar to their incidence rates in 2005 (Appendix F, Table F.1).

**Figure III.2. Incidence Rates per 1000 Workers, by Employing Department, 2010**




Source: Appendix F, Table F.

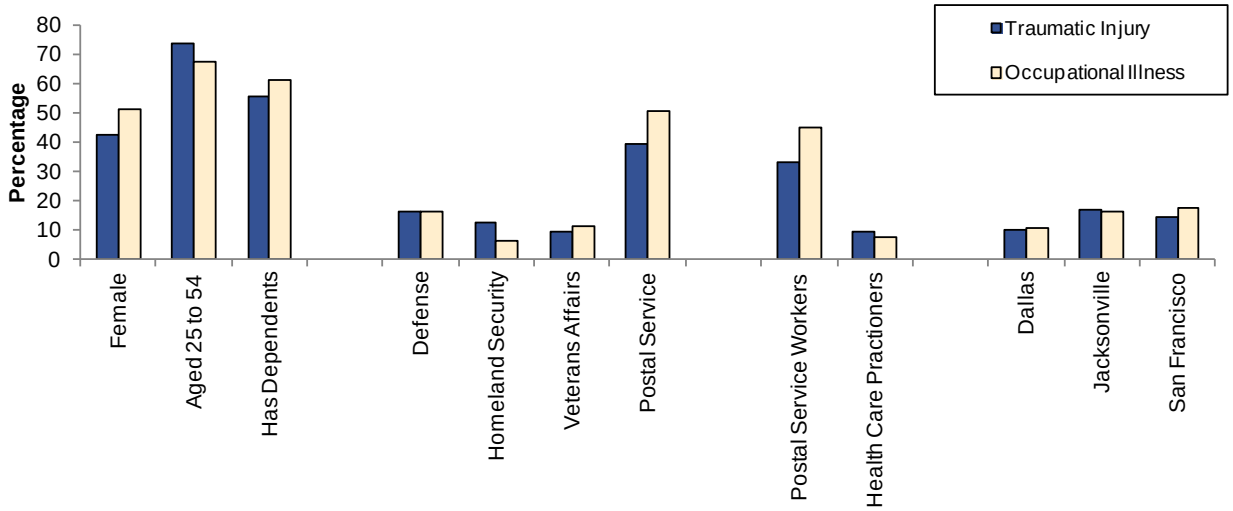
Occupational illness cases were less frequent than traumatic injuries and had different patterns of incidence rates. The U.S. Postal Service reported 11 illness cases per 1,000 employees in 2010, the highest rate of the four departments. The Departments of Veterans Affairs, Homeland Security, and Defense reported 7, 5, and 3 cases per 1,000 employees, respectively, in 2010. Each of these four departments experienced at least a 20 percent drop in the occupational illness incidence rate from 2005 to 2010. The Department of Homeland Security cut its rate by half during that time, from 10 cases per 1,000 employees in 2005.

These different patterns among traumatic injury and occupational illness cases in number and incidence of FECA cases reflect important underlying differences in the nature of the cases. We therefore analyze each type of case separately in all subsequent analyses.

## B. Characteristics of FECA Cases

In this section, we describe the characteristics of FECA cases separately by traumatic injuries and occupational illnesses and highlight characteristics that were notably different among cases reported in 2005 compared with those reported in 2010.[27] Traumatic injury cases originated from a wide variety of claimants, occupations, and employing departments, and they were caused by many different types of injuries (Appendix F, Table F.2). Injury cases reported in 2005 were similar to those reported in 2010, but a greater percentage of claimants were of prime working age (25 to 54) and likely to work at the Postal Service or Department of Homeland Security when incurring the injury. Unemployment rates in the claimants' local areas were lower in 2005, as expected given the economic downturn that began in 2010.

**Figure III.3. Characteristics of FECA Cases: Demographics, Employment and District 2005-2010**




Source: Appendix F, Tables F.2 and F.3

Although the prevalence and types of injuries differ for occupational illness and traumatic injury cases, the demographic characteristics of the two types of cases are similar (Figure II.3 and Appendix F, Tables F.2 and F.3). A summary of these findings is as follows:

**Gender.** Female claimants were relatively more common among occupational illness cases than traumatic injury cases. Among traumatic injury cases, 42 percent involved female claimants, compared with 51 percent of occupational illness cases.

**Age.** Prime-age workers, those ages 25 to 54, accounted for a majority of reported cases. Workers ages 25 to 54 reported 74 percent of traumatic injury cases, whereas those 55 and older reported 21 percent. Occupational illness cases more frequently involved older workers: 31 percent of cases had claimants older than 55 over; only 68 percent.

[27] We note that a higher percentage of cases in a particular category does not necessarily imply that workers in that category are more likely to file a FECA claim than workers in another category because the frequency of cases depends on the size of the covered workforce in addition to the incidence rate. For instance, a high proportion of FECA cases with claimants in office and administrative support occupations most likely reflects that these occupations are relatively common in the federal workforce covered by FECA.

**Dependents.** Slightly more than half of cases involved claimants with dependents—56 percent of traumatic injury cases and 61 percent of occupational illness cases..

**Local unemployment rate.** Claimants in traumatic injury cases faced an average 6.5 percent local unemployment rate in the year of the injury, compared with 6.3 percent for occupational illness cases.

**Employing department.** A greater proportion of traumatic injury cases (39 percent) were reported by employees of the Postal Service than by any other department, in part due to its large number of employees. The Departments of Defense, Homeland Security, and Veterans Affairs each accounted for 10 percent or more of traumatic injury cases. The shares of occupational illness cases across departments were similar, although the Postal Service accounted for a larger proportion of cases (51 percent and Homeland Security accounted for a smaller proportion (6 percent).

**Occupation.** More traumatic injury cases involved office and administrative support jobs than any other job. Workers in these jobs reported 41 percent of traumatic injury cases, of which a majority (33 percent of all cases) were Postal Service workers. Protective service workers reported 12 percent of traumatic injury cases and other occupations each reported fewer than 10 percent. Office and administrative support workers reported a greater proportion of occupational illness cases (55 percent) and protective service workers reported a smaller proportion (4 percent).

Cases with occupational illnesses had substantially different injury characteristics compared with traumatic injury cases, as would be expected given the contrast in the definitions of the two injury types (Appendix F, Table F.3). A summary of these findings is as follows:

**District office.** The caseload varied substantially across district offices, likely reflecting differences in the number of covered workers in each area. Jacksonville handled the largest proportion of traumatic injury cases, (17 percent) followed by San Francisco (14 percent). The occupational illness caseloads were distributed relatively similarly across district offices.

**Nature of injury.** Traumatic injuries and occupational illnesses involved substantially different types of ailments, as shown in Figure III.4A. Most traumatic injuries were sprains or wounds, representing 29 and 26 percent of cases, respectively. Another 17 percent were back injuries and 9 percent were classified as pain. A similar proportion of occupational illness cases were classified as pain, but sprains, wounds, and back injuries were less common. In fact, 83 percent of occupational illnesses did not fall into one of these four most common injury natures.

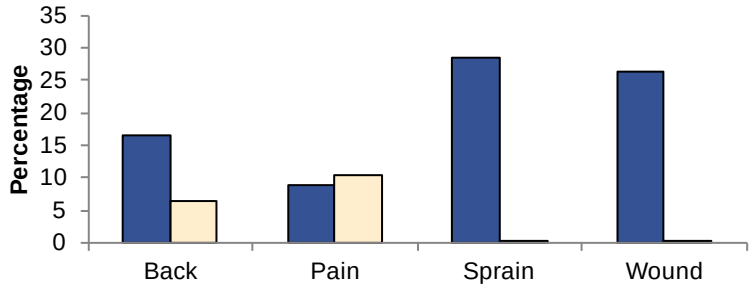
**Area of injury.** As shown Figure III.4B, injuries and illnesses affected a wide variety of areas of the body, with substantial differences between traumatic injuries and occupational illnesses. About one-fifth (19 percent of traumatic injury cases are classified as external, 11 percent are injuries to one or both knees, and other areas of the body account for fewer than 10 percent of cases each. By contrast, 18 percent of occupational illness cases affected the head (internally), 14 percent affected one or both arms, and 11 percent each were classified as external or injuries to the hands.

**Cause of injury.** Falls are the most common cause of traumatic injuries, but a majority of occupational illnesses are caused by handling mail or manual equipment, shown in Figure III.4C. Falls caused 27 percent of traumatic injuries across the study period and handling mail caused 13 percent. Handling manual equipment and slipping caused 12 and 11 percent of injuries, respectively, and other causes each accounted for fewer than 10 percent of cases. By contrast,

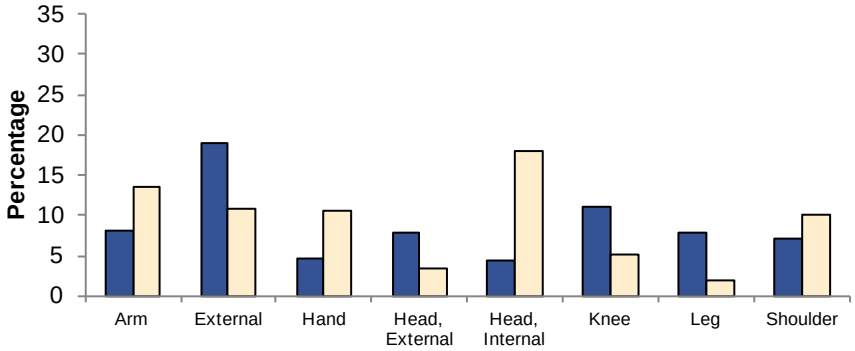
handling mail and handling manual equipment each accounted for 32 percent of occupational illness cases.

**Figure III.4. Characteristics of FECA Cases: Nature, Area, and Cause of Injury, 2005-2010**

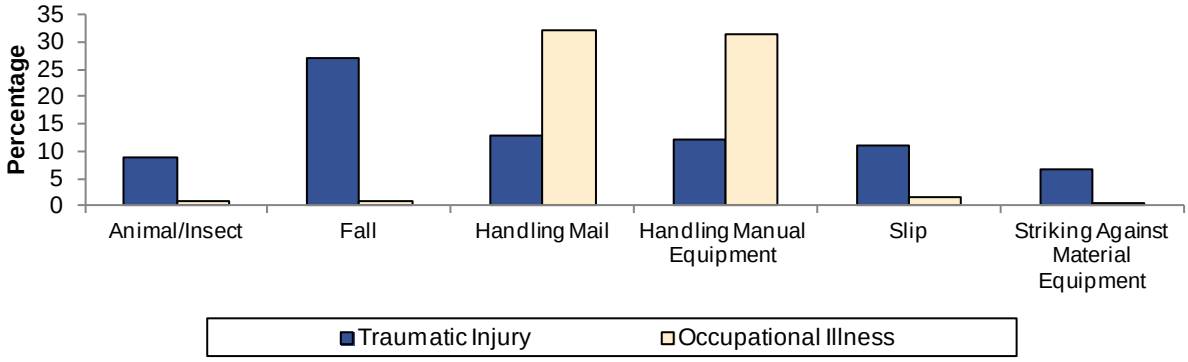
**A. Nature**




**B. Area of the Body**




**C. Cause**




Source: Appendix F, Tables F.3 and F.4.

Note: Other categories not reported.

### Changes in Case Characteristics, by Year Reported

Characteristics of cases filed in 2005 differed in some notable ways from those filed in 2010 (see Appendix F, Tables F.2 and F.3):

- **Age.** Older workers reported relatively more cases in 2010 than in 2005. Workers ages 55 and older filed 24 percent of traumatic injury cases in 2010 and prime-age workers filed 71 percent. In 2005, these proportions were 19 and 76 percent, respectively, with similar changes occurring for occupational illness cases.
- **Dependents.** More than half (57 percent) of traumatic injury cases reported in 2010 had claimants with dependents, a 7 percentage point increase from cases reported in 2005. Occupational illness cases saw a similar shift over the study period.
- **County unemployment rate.** Higher unemployment rates nationwide during the recent economic downturn led to a 4.5 percentage point increase in the average unemployment rate faced by claimants of cases filed in 2010 relative to those filed in 2005 (9.7 versus 5.1 percent for traumatic injuries).
- **Employing department.** Postal Service and Homeland Security employees reported a smaller share of injury cases in 2010 (35 and 11 percent, respectively) than in 2005 (41 and 16 percent, respectively).
- **Occupation.** The proportion of injury cases involving health care practitioners and technical workers was 7 percent in 2010, a 9 percentage point drop from 2005.
- **Nature of injury.** About one-sixth (15 percent) of occupational illnesses reported in 2010 were classified as pain, a 9 percentage point increase from 2005.
- **Cause of injury.** Almost one-third (30 percent) of traumatic injury cases were attributed to falls in 2010, compared with 25 percent in 2005. However, injuries caused by handling mail were less common in 2010 (10 percent) than in 2005 (16 percent). Few changes occurred in the cause of occupational illness cases.

## C. Management Indicators of FECA Cases

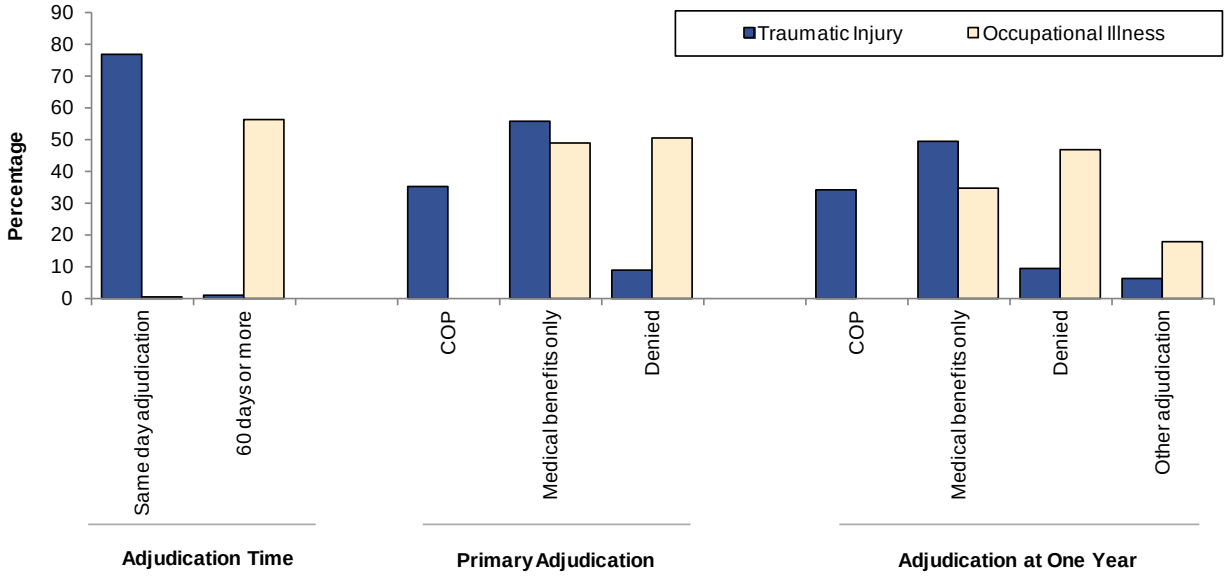
This section examines the management indicators of FECA cases reported from 2005 to 2010. As with our discussion of case characteristics, the analysis also compares cases reported in 2005 with those reported in 2010. These analyses provide a picture of the management decisions made in FECA cases, the services and benefits delivered, and how these indicators changed from the beginning to the end of the period.

A summary of our findings suggests that a large proportion of cases involved relatively few benefits and services, whereas a minority received substantial intervention. Most traumatic injury cases were adjudicated quickly and were determined to be eligible for medical benefits but not compensation (Appendix F, Table F.4). Most received physician services, but few received other medical services, compensation, or service referrals such as field nurse involvement. These patterns most likely reflect that a small proportion of injuries are severe and a majority require relatively little

recovery time. With the exception of the dollar amount of compensation and medical payments, case management indicators have relatively small differences between cases reported in 2005 and those reported in 2010.

Similarly, a majority of occupational illness cases received relatively few benefits and services, with more intensive services received in other illness cases (Appendix F, Table F.5). Adjudication times were substantially longer than for traumatic injury cases, and slightly more than half of cases were denied benefits. Although most occupational illness cases received no compensation and minimal medical services, average compensation and medical payments were higher than for traumatic injuries. These differences likely reflect the added complexity and severity of many occupational illnesses cases.

**Figure III.5. Case Management Characteristics: Initial Progress Measures, 2005–2010**




Source: Appendix F, Tables F.4 and F.5.

## 1. Initial Progress Measures

Early management of cases indicated that most were not expected to need intensive services shortly after they were opened. Although most occupational illness cases required a much longer adjudication time than traumatic injuries, OWCP staff determined that most cases were not eligible to receive compensation for time away from work just after the illnesses were reported, possibly because the claimants did not report wage loss at that time. Figure III.5 compares selected progress measures for traumatic injury and occupational illness cases.

**Days to primary adjudication.** Traumatic injury cases were adjudicated quickly, whereas occupational illness cases generally required more time. More than three-quarters (77 percent) of traumatic injury cases were adjudicated on the same day they were opened, and only 1 percent took 60 days or more. By contrast, most (56 percent) occupational illness cases required 60 days or more to adjudicate, and fewer than 1 percent were adjudicated on the same day. This difference was likely due to the additional complexity of occupational illness cases.

**Primary adjudication status**. A majority of cases did not require more than medical services when first adjudicated. More than half (56 percent) of traumatic injury cases had a primary adjudication status of accepted for medical benefits only, indicating that claimants were not expected to miss work due to their injuries. More than one-third (35 percent) were initially accepted for COP, indicating that some missed work was expected, and 9 percent were initially denied, most likely indicating that the injury was determined not to be work-related. A slightly smaller proportion of occupational illness cases (49 percent) had a primary adjudication status of accepted for medical benefits only. Nearly all of the remaining occupational illness cases (51 percent) were initially denied.

**Adjudication status at one year.** Few traumatic injury cases appear to have needed medical services even at one year. Slightly more than one-third (34 percent) had an adjudication status of accepted for COP, most likely indicating that no further action was needed after the COP period ended. Almost half (49 percent) had been accepted for medical benefits only and 10 had been denied. Only a few (7 percent) had other adjudication status codes. Compared with traumatic injury cases, occupational illness cases had a smaller proportion of cases accepted for medical benefits only at one year, 35 percent. Almost half (47 percent) were denied, a slight decrease from the primary adjudication status, and 18 percent had other adjudication status codes.

## 2. Compensation and Medical Benefits

Compensation to the claimant and frequent medical visits were uncommon. A minority of cases received any compensation in the first year, but those that did collected a substantial amount, on average. Physician visits were common, especially among traumatic injury cases, and they accounted for the lion's share of medical expenses. However, a minority used these services intensively, and hospital and pharmacy visits were substantially less common and less expensive. Figure III.6 compares selected indicators of benefits between traumatic injury and occupational illness cases.

**Compensation.** Claimants received compensation for lost wages in a minority of cases. Only 7 percent of traumatic injury cases were paid compensation in the first year after the injury was reported. Furthermore, 3 percent of injury cases received compensation for 120 calendar days or more, or about 40 percent of the injury cases with any compensation.[28] On average, a traumatic injury case resulted in $660 in real (inflation-adjusted)[29] compensation payments in the first year, including cases with no compensation in the average. In other words, the average case with compensation was paid approximately $9,400 (of which 7 percent is $660). A larger proportion of occupational illness cases (16 percent) received some compensation, with 6 percent receiving it for 120 calendar days or more. The average occupational illness case was paid $1,465 in compensation in the first year, in line with the higher proportion of cases receiving any compensation.

**Hospital visits.** A majority of cases did not require hospitalization, but a small proportion required substantial treatment. Almost three-quarters (72 percent) of traumatic injury cases were not reimbursed for any hospital visits in the first year after the case was reported. However, 12 percent of traumatic injuries involved five or more hospital visits and, on average, cases were reimbursed for $654 in hospital expenses. Hospital visits were less common among occupational illness cases, with

[28] Throughout the report, duration of compensation and lost time are measured in calendar days. This differs from OWCP's measure of lost production days, which counts only days that the claimant would have worked.

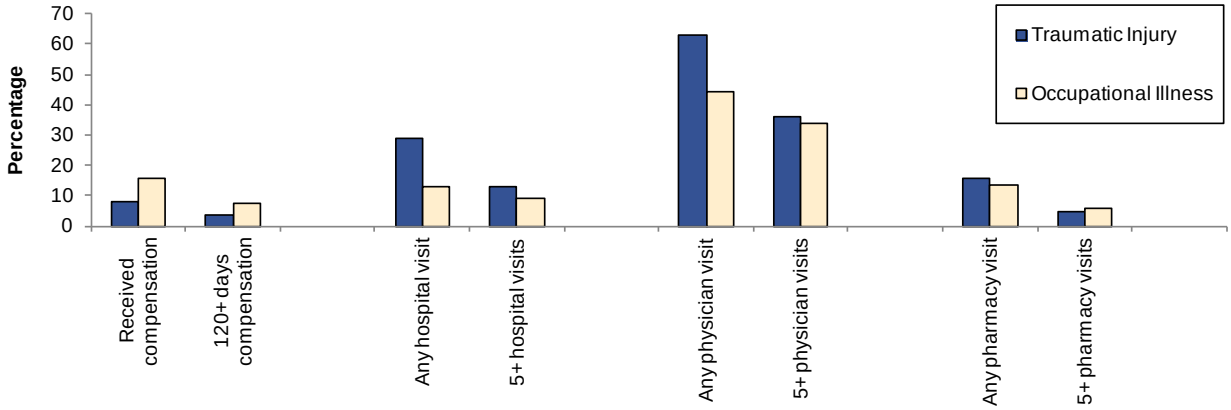
[29] All dollar values are adjusted to January 2005.

86 percent receiving no hospital services and only 9 percent requiring five or more visits. Nonetheless, the average occupational illness case involved $801 in payments to hospitals, possibly suggesting that claimants with illnesses had longer or more costly hospital stays than those with injuries.

**Physician visits.** Physician visits were the most common and costliest medical service provided in FECA cases, but a majority of cases received relatively modest services. More than one-third (38 percent) of traumatic injury cases were not reimbursed for any physician visits and another 17 percent had only one or two visits. However, 36 percent of traumatic injuries involved five or more visits, and the average physician payments made for each case was slightly more than $1,300. Physician visits were also less common among occupational illness cases, with 56 percent receiving no physician services. Although cases with five or more physician visits were no more common among occupational illnesses, the average case incurred more than $500 more in physician payments.

**Pharmacy visits.** Pharmacy services were the least common and least expensive medical service provided in FECA cases. Only 14 percent of traumatic injury cases were reimbursed for any pharmacy services and only 4 percent had five or more visits to a pharmacy. The average traumatic injury incurred less than $50 in pharmacy costs. Aside from slightly higher average costs ($60 per case), occupational illnesses had similar patterns of pharmacy visits.

**Figure III.6. Case Management Characteristics: Compensation and Medical Benefits, 2010**

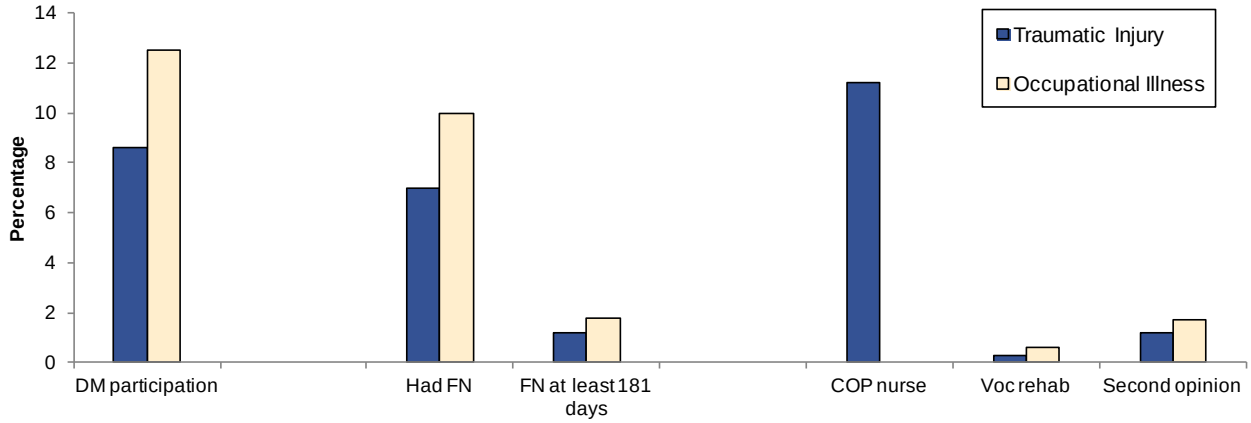



Source: Appendix F, Tables F.4 and F.5

## 3. Service Referrals

Service referrals were uncommon, but most were slightly more frequent among occupational illness cases, as shown in Figure III.7. Only 8 percent of traumatic injury cases entered the DM system, opening the door for additional service referrals. Only 6 percent of injury cases were referred to a field nurse, with only 1 percent having a field nurse for more than 180 days. About one in 10 (9 percent) were referred to a COP nurse and 1 percent or fewer were referred for vocational rehabilitation or a second-opinion examination. Occupational illness cases had similar service referral patterns, but a slightly larger proportion entered the DM system (11 percent) and had a field nurse referral (9 percent). Furthermore, COP nurses are not assigned to occupational illness cases.

**Figure III.7. Case Management Characteristics: Service Referrals, 2010**




Source: Appendix F, Tables F.4 and F.5

DM = disability management; FN = field nurse; COP = continuation of pay.

## Changes in Case Management Indicators

Many case management indicators were similar among cases reported in 2005 and 2010, but there were some notable exceptions (see Appendix F, Tables F.4 and F.5):

**Adjudication status at one year.** In 2010, 46 percent of traumatic injury cases had been accepted for medical benefits only at one year, a 6 percentage point drop compared with 2005. This drop was accompanied by a 2 percentage point increase in other adjudication status codes, possibly indicating a slight increase in the proportion receiving compensation. Changes for occupational illness cases were similar.

**Medical payments.** Although the proportion of cases with hospital, physician, and pharmacy visits changed little from 2005 to 2010, average payments per case for each type of medical service increased. Most notably, payments to physicians increased from $1,128 to $1,439 for the average traumatic injury case. Occupational illnesses saw an even sharper increase in average physician payments, from $1,485 in 2005 to $2,034 in 2010.

**Compensation.** From 2005 to 2010, the proportion of traumatic injury cases receiving any compensation increased by 2 percentage points and the average compensation increased by $209, from $597 to $806. Despite a small increase in the proportion of occupational illness cases receiving any compensation from 2005 to 2010 (1 percentage point), average compensation increased by $419 during that time, from $1,350 to $1,767.

**Nurse referral.** Nurse referral was slightly more common for traumatic injury cases opened in 2010 than those reported in 2005: referral rates increased by 2 percentage points for field nurses and 3 percentage points for COP nurses.

## D. Discussion

A majority of FECA cases reported to OWCP were traumatic injuries, more than 85 percent of the total in each year from 2005 to 2010. The caseload decreased from 2005 to 2010 by 13 percent for traumatic injuries and 27 percent for occupational illnesses. A total of 110,691 traumatic injury cases were reported in 2010, for an estimated incidence rate of 39 cases per 1,000 covered workers. This incidence rate of traumatic injury cases reflects a substantial drop from 2005, when approximately 47 cases per 1,000 covered workers were reported. By contrast, 15,258 occupational illness cases were reported in 2010, or 5 cases per 1,000 covered workers. The occupational illness incidence rate also fell, from 8 cases per 1,000 covered workers in 2005 to 5 cases in 2010.

Incidence rates varied substantially across departments. The Department of Homeland Security and the Postal Service had the highest estimated incidence rates of traumatic injuries, 64 and 61 cases per 1,000 covered workers, respectively. However, the 2010 rate for the Department of Homeland Security reflects a drop of more than half from the 2005 rate of 135 cases per 1,000 covered workers. The Postal Service also had the highest incidence rate of occupational illnesses, 11 cases per 1,000 covered workers in 2010.

Cases reported to FECA represented a wide variety of case characteristics. Although some claimant age groups, occupations, district offices, and other characteristics were more common among cases than others, many of these differences were likely to reflect the population of workers covered by FECA. Injury characteristics were notably different between traumatic injury and occupational illness cases. Sprains and wounds were much more common among traumatic injury cases and falls were the most common cause of injury. By contrast, occupational illnesses were most frequently caused by handling mail or manual equipment.

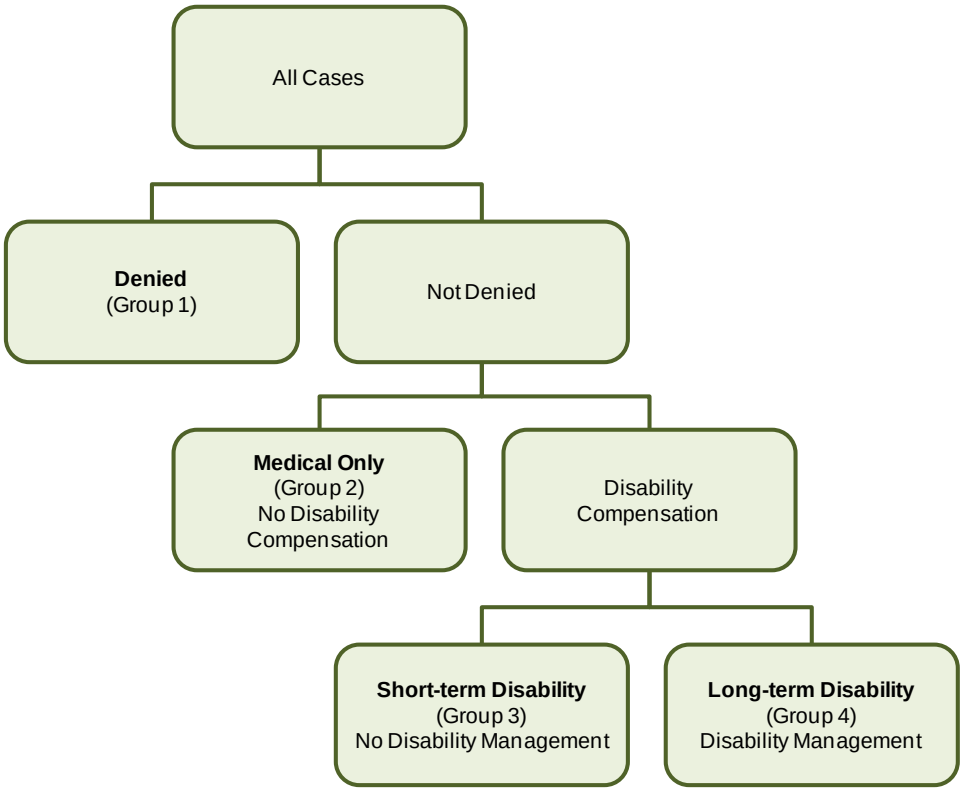
A majority of cases received minimal benefits and services in the first year and a small proportion received intensive services consistent with severe injuries. In the first year, 93 percent of traumatic injury cases and 86 percent of occupational illness cases received no compensation for lost wages, but about 40 percent of the remainder received compensation for 120 calendar days or more. At least one physician visit was common among traumatic injury cases, but otherwise medical services were relatively uncommon, with at least 70 percent of injury and illness cases receiving no reimbursed hospital or pharmacy visits. Service referrals were also relatively rare, with fewer than 10 percent of injury or illness cases receiving a field nurse referral. These sharp differences in service delivery are explored further in the next chapter, which examines injury severity.

# IV. INJURY SEVERITY

Injury severity plays a critical role in determining the progression of a case and thus the services delivered to it. Claimants with more severe injuries are expected to receive more medical treatment and other services than claimants with less severe injuries and to be more likely to lose a greater amount of time from work. OWCP must then manage each case in a manner appropriate for its level of severity, taking into account the work limitations imposed by the injury and the expected recovery time. One challenge in studying injury severity using the administrative data of FECA cases is that injury severity can be difficult to measure and quantify. However, the progression of a case and the decisions that OWCP makes about managing it in the first year enable us to develop some proxy measures for injury severity.

This chapter explores how case characteristics and case management indicators varied across four mutually exclusive groups of cases designed to capture different levels of injury severity. Although OWCP does not formally organize cases into these groups, the definitions underlying each grouping represent important triggers in determining management practices. Accordingly, OWCP is likely to approach each group with different case management practices that align with the severity of the cases in those groups.[30]

**Figure IV.1. Relationships Among Groups**




[30] Although injury severity is expected to influence the case management practices, and therefore the grouping, we cannot be sure that cases in the same group have similar work limitations or expected recovery times.

The four groups of cases examined in this chapter are delineated by indicators measured one year after the case was reported. Figure IV.1 shows the conceptual relationships among the four groups and Table IV.1 provides their empirical definition. *Denied* cases had an adjudication code indicating that benefits had been denied one year after the report date. These cases did not involve work-related injuries or illnesses of FECA-eligible employees, so they fell outside of the purview of OWCP. *Medical only* cases were eligible for FECA benefits, but the claimant did not receive any disability compensation in the first year. Claimants receive disability compensation only if their injury or illness prevents them from working (and after the COP period has elapsed for traumatic injuries), so cases without compensation are likely to represent relatively mild injuries and illnesses. Cases with disability compensation issued to the claimant in the first year are further subdivided based on entry into the DM system. Cases in the *some lost time* group received compensation but did not enter the DM system in the first year, indicating that the injury was sufficiently severe to prevent the claimant from working for some period but not so severe that the claimant was identified for more intensive intervention. Finally, cases in the *intensive support* group include those with compensation and a DM record in the first year, indicating that the claims examiner determined the injury to be severe enough to warrant DM services.

**Table IV.1. Groups of Cases and Expected Severity**

| Group | Definitions | Level of Severity |
|---|---|---|
| Denied | The case was adjudicated as denied one year after the report date. | **Not applicable.** Denied cases did not involve eligible work-related injuries or illnesses and are not under the purview of OWCP. |
| Medical Only | The case was not denied and the claimant had no record of receiving disability compensation in the first year after the report date. | **Low severity.** Lack of disability compensation paid to the claimant for lost time indicates that the injury or illness was unlikely to be very severe. |
| Some Lost Time | The case was not denied and the claimant had a record of receiving some disability compensation but no DM record in the first year after the report date. | **Moderate severity.** Injury or illness was sufficiently severe to receive disability compensation for the claimant for lost time, but not enough to trigger the DM system. |
| Intensive Support | The case was not denied, the claimant had a record of receiving disability compensation, and the case had a DM record in the first year after the report date. | **High severity.** OWCP expected that the claimant would have an extended period away from work. |

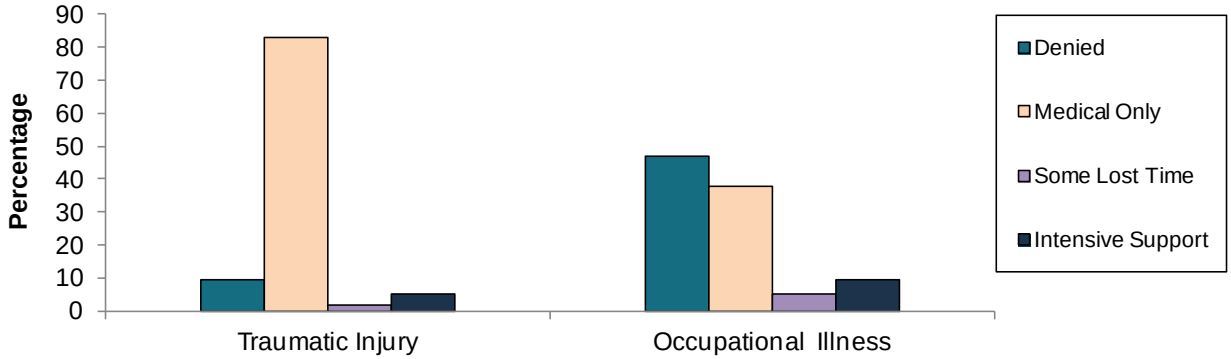
The first section of this chapter tabulates the number of cases by group, injury type, and year reported. This analysis provides a sense of the distribution of injury severity of FECA cases and how this breakdown changed over time. The next section examines the characteristics of cases separately by group and injury type and shows how the groups of cases differ in characteristics at the time they are opened. It provides a sense of which characteristics tend to be associated with greater severity. Finally, we compare the management indicators of cases separately by group and injury type to show how cases differ across groups in their progression and the services they received.

## A. Distribution of Cases by Group and Year Reported

The majority of traumatic injuries were medical only cases in each year of the study (Figure IV.2 and Table F.6 in Appendix F). More than three-quarters (83 percent) of traumatic injuries were determined to be eligible for medical services but did not receive compensation in the first year. Denied cases were the second most common group of traumatic injury cases, representing 10

percent of cases. Only 5 percent of cases entered the DM system in the first year and only 2 percent were in the some lost time group.

**Figure IV.2. Distribution of Cases from 2005 through 2010, by Group and Injury Type**




Source: Appendix F Table F.6.

The number of traumatic injury cases in each group fell from 2005 to 2010, with the exception of intensive support cases. The number of medical only cases fell by 16 percent, from 107,178 to 90,431. This decrease is roughly in line with the 13 percent drop in the total number of cases, so the proportion of medical only cases changed little. By contrast, the number of cases in the intensive support group increased by 20 percent, from 5,722 cases reported in 2005 to 6,849 cases reported in 2010. Given the drop in total caseload, this represents a substantial increase in the share of traumatic injuries in the intensive support group. One possible explanation of this trend is that OWCP has undertaken recent efforts to place more cases in DM status to ensure that proper treatment is provided, meaning that this trend might reflect a change in procedures rather than an increase in the severity of cases.

In contrast to traumatic injuries, nearly half of occupational illness cases (47 percent) were denied from 2005 to 2010 and a smaller proportion received medical benefits only (38 percent); larger proportions had some lost time (5 percent) or intensive support (10 percent). Although the number of occupational illness cases in each group dropped from 2005 to 2010, they did not fall by the same proportion. The number of occupational illness cases with some lost time dropped by 40 percent (from 1,168 in 2005 to 697 in 2010) and the number of medical only cases dropped by 36 percent. Denied occupational illness cases fell by 20 percent (from 9,399 in 2005 to 7,485 in 2010), slightly less than the 27 percent drop in the total number of illness cases. In contrast to the other three groups, the number of intensive support cases fell by only 8 percent (from 1,821 in 2005 to 1,673 in 2010), indicating that the proportion of occupational illness cases receiving DM services actually increased over that time.

## B. Characteristics of Cases by Group

When we examine the characteristics of FECA cases in each group for traumatic injuries and occupational illnesses (Appendix F, Tables F.7 and F.8, respectively), we see that cases in each group had a wide variety of demographic, pre-injury employment, and injury characteristics. This suggests that case characteristics alone might not be strong predictors of injury severity. Still, particular characteristics were more heavily represented in some groups than others.

**Gender.** Female claimants reported a larger proportion of traumatic injury cases in the some lost time (53 percent) and intensive support group (46 percent) than in the medical only group (41 percent). Occupational illness cases showed similar but more pronounced patterns: 63 percent of some lost time cases, 61 percent of intensive support cases, and 44 percent of medical only cases involved female claimants. A larger proportion of denied occupational illness cases (53 percent) also involved female claimants.

**Age.** The age of claimants in traumatic injury cases did not vary substantially across the four groups. By contrast, claimant age varied notably across groups of occupational illness cases. Workers 55 and older were disproportionately represented in the medical only group, while prime age workers (those 25 to 54) were disproportionately represented in the cases with some lost time (that is, the ratio of prime-age-to-older workers is about 2 in medical only and about 3 in some lost time).

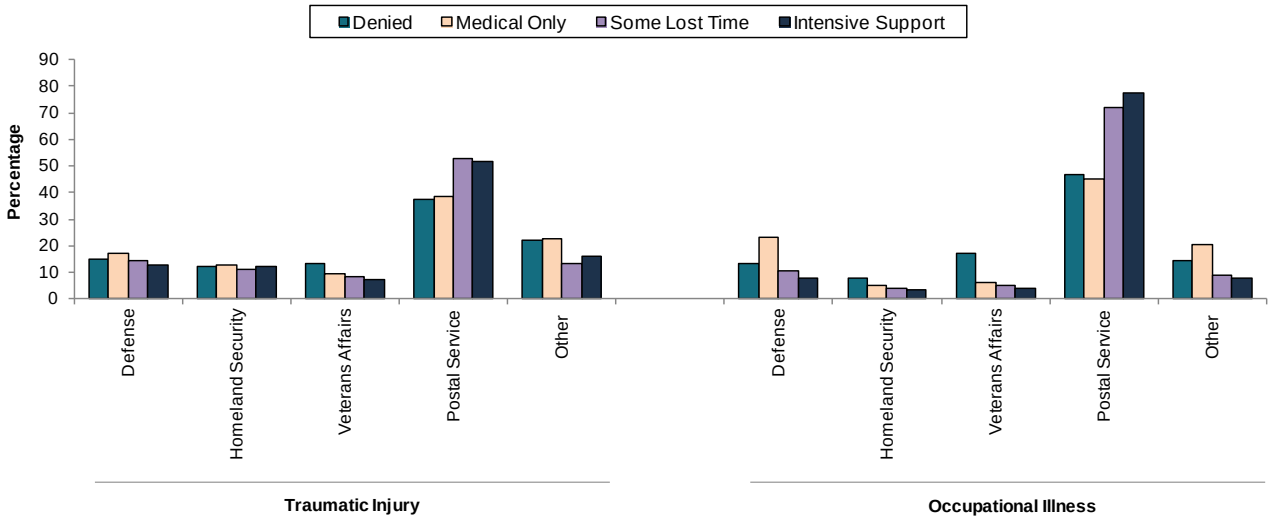
**Dependents.** The proportion of cases in which the claimant had dependents varied slightly across groups. Among traumatic injury cases, claimants with dependents reported the largest proportion of cases in the some lost time group (60 percent) and the fewest in the denied group (54 percent). Occupational illnesses showed similar patterns.

**Unemployment rate.** County-level unemployment rate in the claimant's home location had little systematic variation across the groups of cases.

**Employing department.** The four employing departments with the largest FECA caseloads each had roughly equal representation among the four groups of traumatic injury cases (Figure IV.3). However, the Postal Service employed claimants in 53 percent of traumatic injury cases with some lost time and 52 percent of intensive support cases, but only 37 percent of denied and 39 percent of medical only cases. Traumatic injury cases originating from all other departments were more heavily represented among denied and medical only cases (22 percent each) than among some lost time cases (13 percent) and intensive support cases (16 percent).

The Postal Service showed a similar but more marked pattern across groups for occupational illness cases. Almost three-quarters (72 percent) of occupational illness cases in the some lost time group and 77 percent of occupational illness cases in the intensive support group were reported by Postal Service employees, compared with 47 percent of denied and 45 percent of medical only cases. The Department of Defense had a disproportionate share of medical only cases (23 percent) but relatively small proportion of some lost time (11 percent) and intensive support cases (8 percent). Employees of the Department of Veterans Affairs reported a greater proportion of denied cases (17 percent) than other groups of cases.

**Figure IV.3. Distribution of Employing Department, by Group and Injury Type**




Source: Appendix F, Tables F.7 and F.8.

**Occupation.** The four groups of cases varied somewhat in the distribution across the occupational categories with the most FECA cases and a composite category of all other occupations. Office and administrative support workers represented 52 percent of traumatic injury cases in the some lost time group and 50 percent of cases in the intensive support group, compared with 40 percent of cases in the medical only group. Postal Service workers comprised a majority of workers in this occupation category and showed similar patterns. Protective service workers and workers in the composite category of other occupations reported a greater proportion of medical only cases (12 and 26 percent, respectively) than they did of some lost time cases (6 and 19 percent, respectively). Occupational illness cases had similar patterns as traumatic injury cases for workers in office and administrative support and other occupations. Occupational illness cases involving protective service workers were rare in all four groups.

**Nature of injury.** The distributions of traumatic injury cases across groups differed sharply with the nature of the injury. Among the four most common injury natures and a composite category of other natures, wounds were much more frequent among medical only cases (29 percent) than any other group (13 percent or fewer). Sprains were common among some lost time cases (41 percent) and intensive support cases (40 percent) relative to medical only cases (28 percent). Back injuries and injuries of other natures were most common among denied cases. About one-fifth (21 percent) of denied traumatic injury cases involved back injuries and 30 percent involved injuries of other natures, compared with 16 percent and 19 percent of medical only cases, respectively. Occupational illness cases showed no meaningful systematic differences in the nature of injury across the four groups.

**Area of injury.** The distribution of traumatic injury cases across groups also differed by the location of the injury. External injuries and internal head injuries were most common among denied traumatic injury cases. They accounted for 25 and 9 percent (respectively) of denied traumatic injury cases but only 18 and 4 percent (respectively) of medical only cases. Knee and shoulder injuries were relatively more likely to involve lost time or intensive support, whereas injuries affecting locations not among the eight most common areas were less likely to involve lost time or intensive support. Knee and shoulder injuries were each 6 percentage points more common among lost time cases than

among medical only cases; injuries affecting other areas were 6 percentage points more common among medical only cases than among lost time cases.

Occupational illness cases showed similar patterns for illnesses affecting the head internally. These illness cases accounted for 23 percent of medical only cases but only 6 percent of some lost time cases and 2 percent of intensive support cases. Occupational illness cases affecting the shoulder were more common in the intensive support group (20 percent) than the some lost time (13 percent) or medical only groups (10 percent).

**Cause of injury.** Some causes of injury were more frequently found in one group of traumatic injury cases than another. Animal or insect bites generally required medical services only: 10 percent of medical only traumatic injury cases were caused by an animal or insect bite, compared with 2 percent of some lost time cases and 4 percent of denied cases. Injuries caused by falls and handling mail more frequently involved some compensation: 32 percent of traumatic injury cases in the some lost time group were caused by falls and 19 percent were caused by handling mail, compared with 27 percent and 12 percent of cases, respectively, in the medical only group. By contrast, injuries due to other causes (those not in the six most common injury types) were less frequent among some lost time cases (14 percent) than among medical only cases (22 percent).

Similar patterns were present in occupational illness cases. Illnesses caused by handling mail were more frequent among some lost time cases (42 percent) than among medical only cases (30 percent). Similar to handling mail, illnesses caused by handling manual equipment represented 7 percentage points more of the some lost time group than of the medical only group. Occupational illness cases due to other causes were less frequent among some lost time cases (20 percent) than among medical only cases (38 percent).

**District office.** The distribution of cases among groups varied with the district office handling the case. Most notably, the New York City and San Francisco offices handled a larger proportion of traumatic injury cases in the intensive support group (14 and 16 percent, respectively) than in the some lost time group (7 and 10 percent, respectively). San Francisco's occupational illness caseload also represented a larger proportion of the intensive support group (22 percent) than the some lost time group (15 percent), although New York City's illness caseload did not show a comparable difference.

## C. Case Management Indicators by Group

This analysis compares the management indicators of FECA cases in each group for traumatic injuries and occupational illnesses (Appendix F, Tables F.9 and F.10, respectively). It shows marked differences in benefits and service delivery across the four groups, with the small proportion of cases in the groups indicative of the most severe injuries receiving far more compensation and medical services than other groups.

**Days to adjudication.** Medical only cases tended to be adjudicated more quickly than other groups, with 84 percent of traumatic injury cases receiving a primary adjudication status on the same day that it was opened. Cases in the some lost time and intensive support groups took slightly longer to adjudicate, with 73 and 75 percent of cases, respectively, having same-day adjudication. The starkest difference, however, was that denied cases took substantially longer to adjudicate, perhaps

due to the time needed to collect evidence about each claim's eligibility for benefits. More than three-quarters (76 percent) of denied cases were adjudicated 30 to 59 days after opening, and 6 percent took 60 days or more.[31]

Although occupational illness cases consistently took longer to adjudicate than traumatic injury cases (see Chapter III), they showed some similar patterns across groups. The denied group had the largest fraction of occupational illness cases requiring 60 days or more from the case open date (64 percent). However, a large proportion of medical only cases (53 percent) also required 60 days or more. Interestingly, smaller proportions of some lost time and intensive support cases (46 and 38 percent, respectively) were adjudicated 60 days or more after the cases were opened.

**Adjudication status.** Primary adjudication status is somewhat indicative of a case's group, particularly acceptance of a traumatic injury case for COP. More than three-quarters (82 percent) of traumatic injury cases that were denied one year after the report date also had an initial adjudication status of denied, with the remainder initially determined eligible for COP (7 percent) or medical benefits only (11 percent). Most of the traumatic injury cases in the medical only group (62 percent) were initially adjudicated as being accepted for medical benefits only, but 37 percent were initially adjudicated as eligible for COP, indicating that these claimants might have missed some time from work in the first 45 days after the injury. Initial acceptance for COP was more common among cases that eventually lost time in the first year, 45 percent of some lost time cases and 54 percent of intensive support cases. A possible explanation is that claimants who missed work during the COP period due to an injury were more likely to miss work outside of the COP period as well. Furthermore, 81 percent of some lost time cases and 79 percent of intensive support cases had an adjudication status other than COP, medical only, or denied one year after the report date. Most of these other statuses indicate that the claimant was approved to receive compensation.[32]

Virtually all (99 percent) of the occupational illness cases that were denied one year after the report date also had an initial adjudication status of denied. Most occupational illness cases in the three other groups were initially accepted for medical benefits only, from 88 percent (some lost time) to 93 percent (medical only). With no COP option for occupational illnesses, nearly all of the remaining cases were initially denied benefits, so initial adjudication status was not as useful for indicating the severity of an occupational illness as it was for a traumatic injury. Consistent with traumatic injuries, 79 percent of occupational illness cases in the some lost time group and 83 percent of cases in the intensive support group received an adjudication status other than medical benefits only or denied, generally indicating an approval to receive compensation.

**Compensation.** Disability compensation paid to the claimant differed markedly across the four groups of cases. By definition, the medical only group contained no cases that received compensation, whereas all cases in the some lost time and intensive support groups received compensation for at least one day. Consistent with its greater expected severity of cases, the intensive support group had a larger proportion of its traumatic injury cases receive compensation

[31] Although 17 percent of denied cases were adjudicated on the same day, those cases were not necessarily adjudicated as denied on that day. They might have been deemed eligible for some benefits initially, and then later denied for subsequent benefits based on additional information collected.

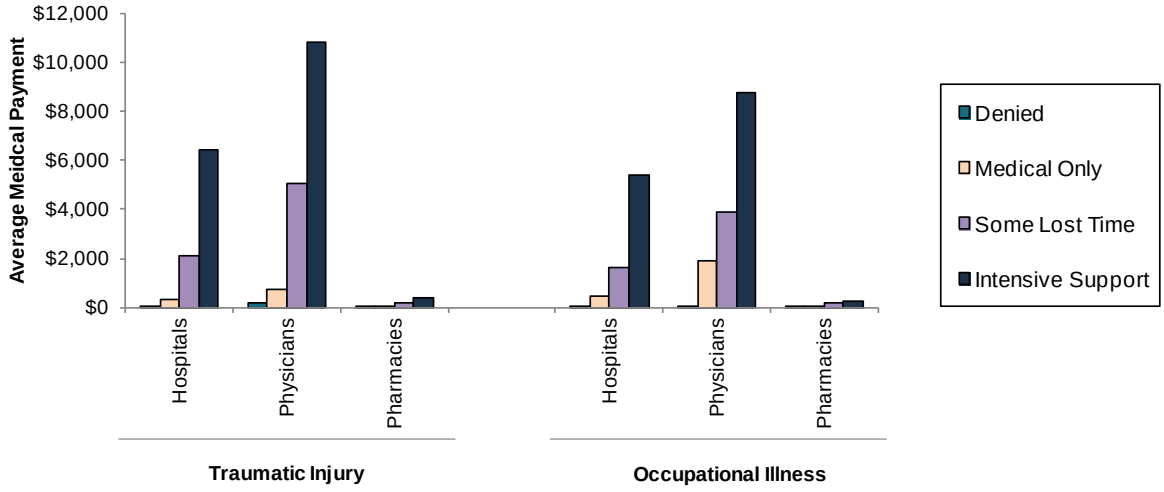
[32] As discussed in Appendix A, however, the adjudication status code is not always updated, so the assignment of cases to groups is based on compensation records, which are believed to be more accurate.

for 120 calendar days or more in the first year (49 percent) than did the some lost time group (16 percent). Intensive support cases sustaining traumatic injuries were paid an average of $11,414 in compensation in the first year, compared with $2,977 for the some lost time group. Nearly all (99 percent) of denied traumatic injury cases received no compensation, but a small proportion did, for an average of $104 paid on behalf of these cases.[33]

Compensation patterns across groups were very similar for occupational illnesses. The most substantial difference was that occupational illness cases in the some lost time group received 46 percent more compensation on average than their traumatic injury counterparts, $4,345 compared with $2,977. This is consistent with 23 percent of occupational illness cases with some lost time receiving compensation for 120 calendar days or more, compared with 16 percent for traumatic injury cases in the same group.

**Hospital visits and payments.** Hospital services were substantially more frequent and costly on average for cases in the more severe case groups, shown in Figure IV.4. The vast majority (95 percent) of denied traumatic injury cases had no reimbursed hospital visits in the first year, compared with 72, 44, and 28 percent of traumatic injury cases in the medical only, some lost time, and intensive support groups, respectively. In fact, a majority (55 percent) of intensive support injury cases had five or more hospital visits, compared with 37 percent of some lost time cases and 10 percent of medical only cases. Total payments to hospitals in the first year were much greater on average for intensive support cases ($6,422) than for cases in the some lost time ($2,101), medical only ($327), or denied ($80) groups. Occupational illness cases had similar hospital usage as their traumatic injury counterparts in each group. Cases with five or more hospital visits were less common among occupational illnesses in the some lost time and intensive support groups, and average payments were slightly lower, $1,608 for the some lost time group and $5,480 for the intensive support group.

**Figure IV.4. Average Medical Payments per Case, by Provider Type, Injury Type, and Group**




Source: Appendix F, Tables F.9 and F.10.

[33] Compensation could have been paid before the case was adjudicated as denied. That compensation might have been paid legitimately to claimants who were later denied for a separate compensation or medical claim. However, the administrative data do not enable us to distinguish between these explanations.

**Physician visits and payments.** Like hospital services, physician services were much more frequent and expensive on average for cases in more severe case groups. A large majority (82 percent) of denied traumatic injury cases had no reimbursed physician visits in the first year, compared with 36, 3, and fewer than 1 percent of medical only, some lost time, and intensive support traumatic injury cases, respectively. In fact, 99 percent of intensive support traumatic injury cases and 91 percent of some lost time cases had five or more physician visits in the first year, compared with 34 percent of medical only cases and 8 percent of denied cases. OWCP paid $10,839 on average for physician payments for a traumatic injury case in the intensive support group, more than double any other group. Total physician payments averaged $5,044, $760, and $156 per case in the some lost time, medical only, and denied groups, respectively. Occupational illness cases also received similar physician services to traumatic injury cases in the same group. Cases with five or more physician visits were less common among occupational illness cases in the some lost time group (78 percent) but more common among occupational illness cases in the medical only group (53 percent). Average payments to physicians were lower for occupational illness cases in the intensive support group ($8,773) and the some lost time group ($3,903) but greater in the medical only group ($1,949).

**Pharmacy visits and payments.** Pharmacy services were less common and substantially less expensive than other medical services (see Chapter III), but they still followed similar patterns across groups as hospital and physician services. Traumatic injury cases in the intensive support group had the most frequent pharmacy visits in the first year, with 33 percent having five or more visits and 44 percent having no visits. A majority of traumatic injury cases in the other three groups did not visit a pharmacy at all, 57 percent for some lost time cases, 87 percent for medical only cases, and 98 percent for denied cases. Average payments to pharmacies were small but also increased across the severity groups: $6, $24, $207, and $393 for traumatic injury cases in the denied, medical only, some lost time, and intensive support groups, respectively. Occupational illness cases followed the same general patterns across groups. Analogous to physician services, occupational illness cases had smaller average payments to pharmacies in the intensive support and some lost time groups but greater average payments in the medical only group.

**Service referrals.** With the exception of COP nurses, service referrals were rare in all case groups except intensive support. This difference was expected given that entrance to the DM system is a prerequisite for many service referrals, such as field nurses.[34] All but 16 percent of intensive support traumatic injury cases were referred to a field nurse in the first year; more than 98 percent of every other group was not referred to a field nurse. The intensive support group also had the largest proportion of traumatic injury cases receiving a COP nurse referral, 24 percent. A smaller proportion of cases in each other group were also referred to a COP nurse: 13 percent of cases in the some lost time group, 9 percent in the medical only group, and 6 percent in the denied group. Vocational rehabilitation referrals and second-opinion examinations occurred almost exclusively in the intensive support group, with 5 and 17 percent, respectively, receiving these referrals. Fewer than 1 percent of any other group received either of these service referrals. Patterns were similar for occupational illness cases, except that COP nurses do not serve illness cases. Relative to traumatic

[34] A small proportion of traumatic injury cases in the denied group (1 percent) and medical only group (3 percent) have a DM record. This could occur if a case is denied after the provision of some DM services or the claimant receives DM services but never claimed compensation.

injury cases, a slightly smaller proportion of occupational illness cases in the intensive support group (12 percent) received a second-opinion examination.

## D. Discussion

Our analysis shows that a majority of traumatic injury cases fall into the medical only group, with a relatively small proportion in the groups indicating greater injury severity. Denied cases are more common among occupational illnesses cases. Further, a greater proportion of occupational illness cases are in the some lost time and intensive support groups than traumatic injuries. Despite a decrease in the number of new traumatic injury and occupational illness cases from 2005 to 2010, the proportion of cases in the intensive support group increased over that time. This trend is a concern due to the severity of injuries and illnesses likely to have caused these cases, as well as the much higher costs of compensation and medical benefits for the average intensive support case. However, this increase in cases categorized as intensive support could also be explained by recent efforts by OWCP to ensure provision of needed services to cases by opening more DM records.

Although some case characteristics differ across groups of cases, the differences are not nearly as stark as for some case management indicators. In other words, case characteristics recorded in the FECA administrative data do not appear to be strong predictors of the severity of a case. The largest differences observed were across employing departments and injury characteristics (which might be expected with groups constructed to reflect severity of injury). Postal Service workers show the biggest differences across groups. Their cases were more likely than others to reach a greater level of severity and less likely to have benefits denied. Postal Service workers reported 52 percent of traumatic injury cases in the intensive support group but only 37 percent in the denied group. More starkly, they reported 77 percent of occupational illness cases in the intensive support group but only 47 percent in the denied group.

The small proportion of cases in the intensive support group received substantially more compensation, medical benefits, and service referrals per case than any other group. Specifically, cases in the intensive support group received, on average, more than double the payments in compensation, physician services, and hospital services than cases in the some lost time group, which in turn received much more than medical only cases. These differences highlight a notable disparity in the severity of cases, but also suggest that on average the DM system successfully identifies cases that require the most intensive benefits and services. In other words, the group of cases that received the most medical care and compensation also received the greatest level of intervention from OWCP, as evidenced by service referrals.

The high proportion of occupational illness cases in the intensive support group explains why illness cases received more benefits on average. Relative to traumatic injury cases, about double the proportion of occupational illness cases fell into the intensive support group, and nearly three times the proportion were in the some lost time group. However, the average compensation and medical benefits paid to occupational illness cases within each of these two groups was roughly comparable to traumatic injury cases in those groups. This suggests that the higher average cost of occupational illness cases relative to traumatic injury cases described in Chapter III is driven by the higher proportion of severe occupational illness cases rather than by differences in the cost of cases with comparable severity.

Groups of cases indicating lower severity received progressively fewer benefits on average. Cases in the some lost time group received fewer benefits on average and were less frequent than intensive support cases, so the total resources allocated to the some lost time group were small

compared with the intensive support group. Cases in the medical only group represented 83 percent of traumatic injury and 38 percent of occupational illness cases, but they received no compensation (excluding COP) and relatively few medical services, on average. Although a small proportion of cases with a denied status one year after the report date received some compensation, medical benefits, and service referrals, these benefits were much less frequent and smaller on average than any other group of cases.

# V. RETURN TO WORK

Return to work is a central goal of FECA. As shown in the preceding two chapters, many cases pass through OWCP with only minimal services required, but OWCP devotes substantial effort in assisting a minority of cases facing much greater challenges recovering from injury or illness. The disparity in case severity is likely to reflect differences in expected work outcomes of those cases, with the cases judged to be most severe receiving the most services and having the least favorable work outcomes. These differences create a need to better understand what factors might be associated with work outcomes.

The analysis of work outcomes builds on the analysis of injury severity in the last chapter. Rather than comparing groups of cases identified by OWCP as requiring a particular set of services, it compares cases with different work outcomes. Although services and outcomes could both serve as indicators of injury severity (and overlap), this analysis shifts the focus from OWCP's procedures for handling cases to the outcomes that the program ultimately aims to improve.

We examine two key work outcomes: lost time and loss of wage-earning capacity (LWEC).[35] Lost time considers whether a claimant was not working full-time at his or her pre-injury wage for at least one day in the first year after the claim was reported. It is a broad measure of a work outcome because it looks at whether *any* lost time occurred during the period. The lost time measure enables us to track the proportion of cases that ever experienced time away from work.[36] LWEC indicates whether the claimant was working full-time (again at his or her pre-injury wage) at a given point in time: one quarter, one year, two years, and three years after the report date. It provides a snapshot of claimants who were not working at a particular point. The usefulness of the LWEC measure is that it affords a comparison of whether claimants were out of full-time work at various times after the report date. In addition, it enables us to identify characteristics and management indicators most strongly associated with cases experiencing time away from work at selected times.

This chapter examines work outcomes of FECA cases reported from 2005 to 2010 and shows how they correlated with their characteristics and management indicators. First, we summarize and discuss the work outcomes, separately by year reported and time elapsed in the case. Next, we describe the associations between case characteristics and their work outcomes one year after the case was reported. Finally, we consider cases in which the claimant had LWEC one year after the case was reported, which we call long-term disability cases, and examine characteristics and case management indicators associated with whether the claimant also had LWEC at two and three years after the case was reported. The summary of work outcomes in 2005 and 2010 uses cases reported only in those years, whereas subsequent analyses use a sample of cases reported from 2005 to 2008 to observe the case for at least three years.

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[35] One challenge in measuring each of these outcomes is that we must use administrative data codes to infer the end dates of each period of time away from work. If those codes are not entered for every case experiencing a return to work, we might incorrectly determine that a claimant has not returned to work when in fact he or she did. In the event that some of these codes are missing, the analysis in this chapter is expected to overstate the frequency and extent of lost time and LWEC.

[36] Appendix F, Tables F.11 to F.13 also describe a related outcome, the number of days of lost time in the first year after the report date.

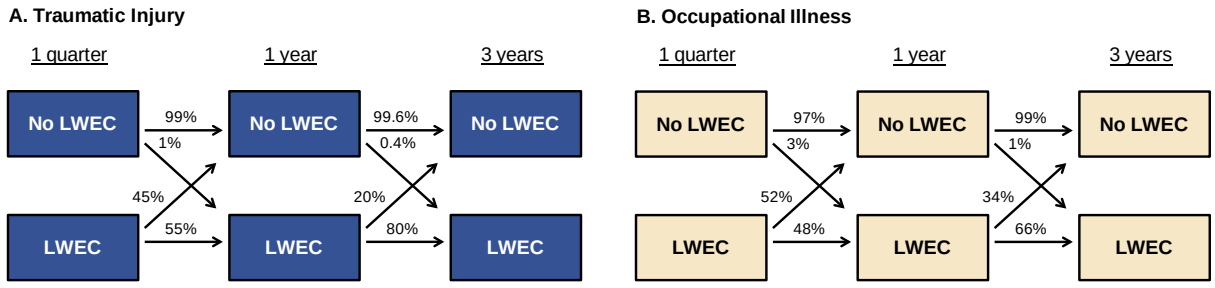
## A. Work Outcomes

Descriptive analyses of the OWCP administrative database highlight a few pronounced trends in work outcomes. First, a minority of cases lost any time from work in the first year, but many of those that did had extensive lost time (Appendix F, Table F.11). About 10 percent of traumatic injury cases reported in 2010 lost any time from work, but 40 percent of those (or 4 percent of all cases) lost 180 calendar days or more of work. At the one-year mark after a case was reported, about 4 percent of cases had LWEC. Occupational illness cases reported in 2010 were much more likely than traumatic injury cases to lose time from work. About 17 percent of occupational illness cases lost some time from work in the first year after the case was reported, with about 43 percent of these cases (or 7 percent of the total cases) losing 180 calendar days of work or more.

Second, work outcomes at one year generally improved for traumatic injury cases from 2005 to 2010 (Appendix F, Table F.11). The percentage of cases reporting any lost time in the first year after reporting fell about 1 percentage point (from 11 to 10 percent) and the number of cases losing 180 or more calendar days and the percentage with LWEC at one year fell from about 6 to 4 percent. The trend in work outcomes was reversed for occupational illness cases, with the percentage of cases losing some time in the first year, the percentage losing at least 180 calendar days, and the percentage with LWEC all increasing slightly from 2005 to 2010.

Third, examining changes in the LWEC status as the traumatic injury case ages (that is, the further away from the report date) reveals that work status was highly persistent for most cases. Figure V.1 shows that cases with claimants who missed work early in the case were likely to remain out of work, whereas cases with claimants who were working full-time early in the case usually remained at work. Only 1 percent of traumatic injury cases with no LWEC at one quarter had LWEC at one year, and fewer than 1 percent with no LWEC at one year had LWEC at three years. By contrast, fewer than half (45 percent) of traumatic injury cases with LWEC at one quarter had returned to full-time work at one year, and an even smaller proportion of cases with LWEC at one year (20 percent) had returned to full-time work at three years. Occupational illness cases showed similar patterns (Figure V.1), but with slightly more frequent transitions. Only 3 percent of occupational illness cases with no LWEC at one quarter had LWEC at one year. A greater proportion of occupational illness cases with LWEC at one year (34 percent) had returned to full-time work at three years.

**Figure V.1. LWEC Transitions Among Cases**




Source: OWCP administrative database.

Note: Percentages shown are the percentage of injury or illness cases from one group that transition to the next group shown.

LWEC = loss of wage-earning capacity.

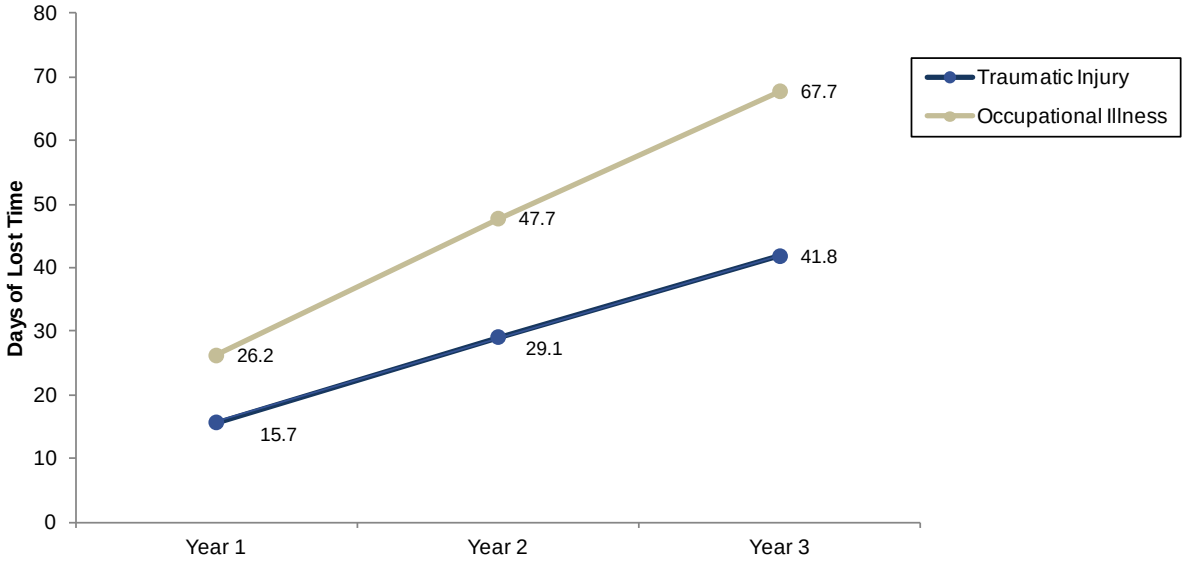
Consistent with these transitions, the proportion of claimants with LWEC changed little from one to three years after the report date (Appendix F, Table F.12). Claimants in 6 percent of traumatic injury cases had LWEC one quarter after the report date, but this proportion fell by 2 percentage points one year after the report date as many claimants returned to work during that time. However, the proportion decreased only 0.4 percentage points in the subsequent two years, consistent with the infrequent transitions away from LWEC after one year. Claimants in a similar proportion of occupational illness cases (7 percent) were not working one quarter after the report date, but this proportion fell at a slower rate. Only 6 percent of occupational illness cases had LWEC after one year and 5 percent had LWEC after three years.

Fourth, when we look at how the lost time outcomes change as the traumatic injury case ages, we see remarkable stability (Appendix F, Table F.12). Only 8 percent of traumatic injury cases had experienced some lost time from work in the first quarter after the injury was reported. This proportion increased only slightly from one year (9 percent) to three years (10 percent) after the report date. Consistent with the patterns in Figure V.1, the small increase in this cumulative measure suggests that claimants in traumatic injury cases who did not experience lost time early in the case were unlikely to lose time up to three years later. However, cases that did lose extensive time from work appear to have started losing time early in the case: 5 percent of traumatic injury cases had accumulated 180 calendar days or more of lost time three years after the report date, but most (4 percent of traumatic injury cases) had accumulated 180 calendar days or more of lost time one year after the report date.

Once again occupational illness cases differed from traumatic injury cases. A slightly greater proportion of occupational illness cases (10 percent) experienced lost time in the first quarter, but this proportion increased sharply at one year (17 percent) and three years (19 percent) after the illness was reported. In other words, the proportion of occupational illness cases with lost time nearly doubled from the first quarter to the third year, suggesting that occupational illness cases can experience lost time later in the case. Although the pattern for days of lost time during the first three years after an occupational illness is reported is similar to that shown for traumatic injury in Figure V.2 (9 percent of cases had accumulated 180 calendar days or more of lost time after three years), a smaller proportion of those cases (6 percent of occupational illness cases) had 180 calendar days or more of lost time one year after the report date, suggesting that extensive lost time was more likely to be accumulated well after the report date in occupational illness cases compared with traumatic injury cases.

Although the proportion of cases with lost time changed little, the total days of lost time continued to accumulate through the third year after the report date. As shown in Figure V.3, traumatic injury cases accumulated an average of 16 calendar days of lost time after one year, 29 calendar days after two years, and 42 calendar days after three years. In other words, the average traumatic injury case accumulated 13 *additional* calendar days of lost time per year in the second and third year, nearly as many as were accumulated in the first year. Occupational illness cases had a similar pattern, but with more lost time on average. The average illness case had accumulated 26 calendar days of lost time after one year, 48 calendar days after two years, and 68 calendar days after three years.

**Figure V.2. Days of Lost Time, by Year After Report Date and Injury Type for Cases Reported in 2005–2008**



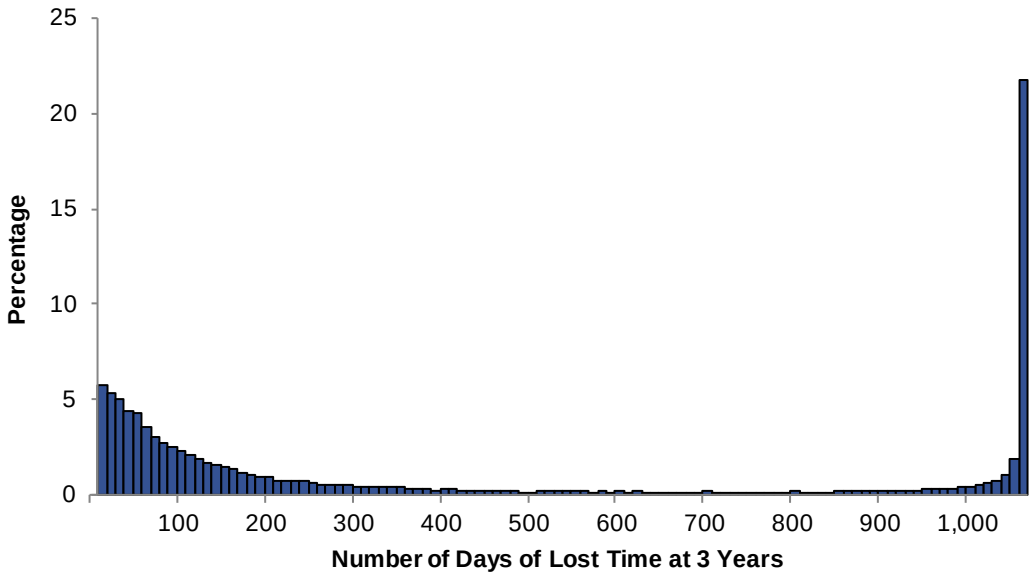

Source: OWCP administrative database.

Among cases with any lost time, the number of days lost in the first three years is striking. Figure V.3 shows that among traumatic injury cases with any lost time, the average case had 294 calendar days of lost time, and half had accumulated more than 180 calendar days (also see Appendix F, Table F.12). Furthermore, the high concentration of cases with nearly three years (1,096 calendar days) of lost time[37] suggests that many began missing full-time work on or shortly after the injury report date and did not return within three years. The pattern for occupational illnesses was similar, but a smaller proportion missed nearly the entire first three years.

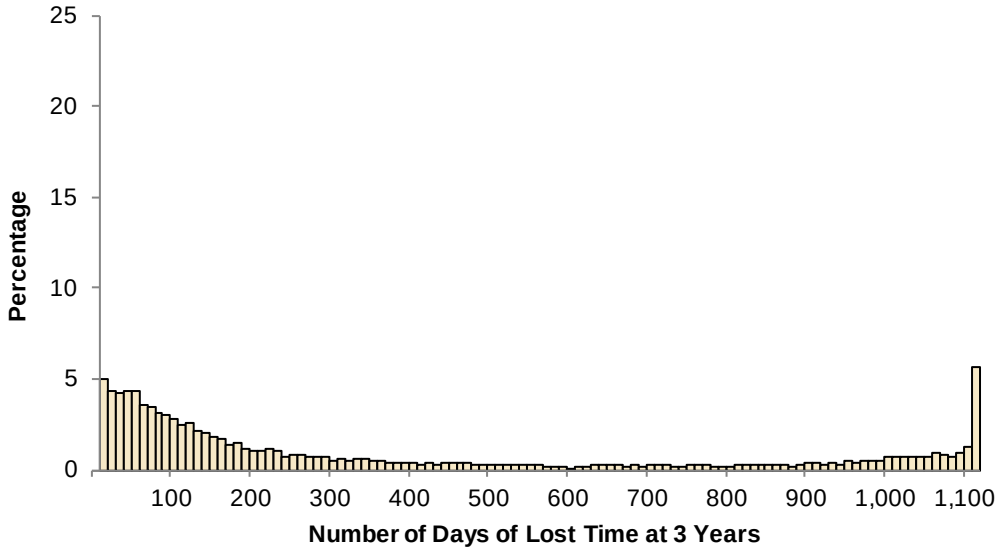
[37] For traumatic injury cases, lost time is measured after the end of the COP period, 45 days after the report date. Accordingly, a traumatic injury case may have at most 1,052 days of lost time at the end of the third year. For occupational illness cases, lost time is measured starting 14 days before the report date. Accordingly, an occupational illness case may have at most 1,111 days of lost time at the end of the third year.

**Figure V.3. Distribution of Days of Lost Time for Cases Reported in 2005–2008 with Any Lost Time**

**A. Traumatic Injury**




**B. Occupational Illness**




Source: OWCP administrative database.

Note: Each histogram shows the frequency of cases that accumulated a certain number of calendar days of lost time in the first three years of the case after the report date. Cases with claimants who missed work for the entire three-year period are shown as 1,096 calendar days, the spike at the end.

## B. Work Outcomes at One Year and Case Characteristics

Given the apparent importance of early return to work, identifying the types of cases most likely to have poor work outcomes at one year has the potential to inform case management decisions. However, our multivariate analysis on the sample of cases reported from 2005 to 2008 suggests that cases with good or poor work outcomes at one year both represent a wide variety of demographic, pre-injury employment, and injury characteristics. Although some characteristics have

statistically significant associations with the work outcomes, those associations are relatively small (Appendix F, Table F.13). In fact, the analysis separates the variation in each work outcome into a component explained by all case characteristics and a component unexplained by factors captured in available data. The proportion of explained variation, the R-squared value of each regression analysis, is only 2 percent for the LWEC outcome and 4 (traumatic injuries) to 8 (occupational illnesses) percent for the any lost time outcome.[38] In other words, identifying cases that are likely to have relatively poor work outcomes at one year requires more information than is captured in characteristics alone.

The associations between work outcomes and case characteristics are summarized in the following paragraphs. Each relationship we describe adjusts for differences in other characteristics, so that it reflects a comparison with otherwise similar cases. For instance, comparisons between women and men are made between cases with different claimant gender but similar age groups, dependent statuses, and other characteristics. We focus on the associations with the largest magnitude and on those for traumatic injuries. Furthermore, we do not discuss the days of lost time outcome, which has qualitatively similar results as the any lost time outcome. However, complete results are shown in Appendix F (Table F.13).

**Gender.** Women had slightly less favorable work outcomes than men, but differences in LWEC and lost time were less than 1 percentage point for traumatic injury cases.

**Age.** Older workers were generally less likely to have favorable work outcomes than younger workers. Traumatic injury cases involving older workers (ages 55 years or older) were 1 percentage point more likely to have any lost time relative to prime-age workers (those 25 to 54); cases involving younger workers (those 14 to 24) were 3 percentage points less likely to have any lost time. Cases with older workers were 1 percentage point more likely to have LWEC at one year than cases with prime-age workers; cases with younger workers were 1 percentage point less likely to have LWEC. Patterns were similar but more pronounced for occupational illness cases.

**Dependent status.** Traumatic injury cases involving claimants with dependents were 1 percentage point more likely to have lost time or LWEC at one year, with similar results for occupational illness cases.

**County unemployment rate.** County unemployment rate had no significant association with work outcomes among traumatic injury cases.

**Pre-injury employment characteristics.** Cases reported by U.S. Postal Service workers had worse outcomes at one year than otherwise similar cases reported by employees of other departments. For instance, traumatic injury cases originating from the Department of Veterans Affairs were 5 percentage points less likely to have any lost time and 2 percentage points less likely to have LWEC at one year compared with Postal Service cases. These departmental differences were qualitatively similar but more pronounced among occupational illness cases. Notably, Veterans

[38] Researchers sometimes avoid R-squared values in regression analyses with binary dependent variables. Despite the unusual interpretation of the statistic in this situation, the very low values suggest that observed characteristics and management indicators have limited value in distinguishing cases with good outcomes from those with poor outcomes. Also note that the large sample of cases contributes to our ability to detect relatively weak associations between outcomes and characteristics with high statistical confidence, but the R-squared values are not affected by sample size.

Affairs cases were 16 percentage points less likely to have lost time and 6 percentage points less likely to have LWEC than Postal Service cases.

**Occupation.** Most occupation categories had limited or no statistically significant associations with work outcomes at one year. One exception was that traumatic injury cases reported by health care practitioners and technical workers were 2 percentage points more likely to have lost time than otherwise similar cases from office and administrative support workers.

**Nature of injury.** Wounds appeared to be the least severe injury type on average, with wound traumatic injury cases being 4 percentage points less likely to result in lost time than otherwise similar cases involving sprains (the most common nature of injury) and 1 percentage point less likely to have LWEC. Differences were more pronounced among occupational illness cases, with wounds being 15 percentage points less likely to have lost time than sprains.

**Area of injury.** Knee and shoulder injuries generally had the least favorable work outcomes. Compared with otherwise similar cases with external injuries—the most common injury location—cases involving traumatic injuries to workers' knees and shoulders were 6.0 and 9.0 percentage points more likely to have lost time and less than one-half of 1 percent and 2.0 percentage points more likely to have LWEC, respectively. At the other end of the spectrum, cases with internal head injuries were 6.0 percentage points less likely to have lost time and 2.0 percentage points less likely to have LWEC at one year. Occupational illness cases had generally similar patterns, although those affecting claimants' hands were also very likely to involve lost time—10.0 percentage points more likely than external illnesses.

**Cause of injury.** Traumatic injuries caused by falls, the most common injury cause, had worse work outcomes than other injury types. For instance, traumatic injury cases in which the claimant was injured by an animal or insect were 8 percentage points less likely to have any lost time and 3 percentage points less likely to have LWEC than cases involving falls. Occupational illness cases showed substantially different patterns, with cases caused by handling mail or manual equipment having the worst outcomes.

**District office.** Work outcomes varied by district office, with some district offices reporting substantially different outcomes from the rest. As an example, traumatic injury cases handled by the New York City office were 5 percentage points more likely to have any lost time or LWEC than cases handled by the Jacksonville office (which handled the most cases). Occupational illness cases showed similar patterns. These differences do not necessarily reflect differences in the quality of case management across offices, because they could be due to differences in case severity not captured by other characteristics in the data.[39]

[39] Another explanation is that district offices differ in how they follow standard procedures for recording data related to claimants' work status. These differences, along with our procedures for constructing work outcomes from the administrative data, could lead the analysis to show greater differences in work outcomes than those that occur in practice. See Appendix E for details.

**Year reported.** Traumatic injury cases reported in 2005 had substantially worse outcomes than cases reported in later years. Cases reported in later years were 2 (2007 and 2008) to 3 (2006) percentage points less likely to have lost time and 3 percentage points less likely to have LWEC than cases reported in 2005. However, no notable systematic patterns were detected among occupational illness cases.

## C. Long-Term Disability Cases

Although few cases with LWEC at one year returned to work in the subsequent two years, understanding the types of cases most likely to leave LWEC status might provide insights into managing these difficult cases. Our multivariate analysis on the sample of long-term disability cases reported from 2005 to 2008 suggests that many case characteristics and management indicators have some relationship with work outcomes at two or three years (Appendix F, Table F.14). However, predicting LWEC at two and three years is difficult: characteristics and management indicators explain only 10 (occupational illnesses) to 12 (traumatic injuries) percent of the variation in LWEC at three years.[40]

### 1. Case Characteristics

This subsection summarizes the associations between LWEC (at two and three years) and case characteristics among long-term disability cases. As in Section B, each relationship we describe adjusts for differences in other characteristics and management indicators.[41] We again focus on the associations with the largest magnitude and on those for traumatic injuries, but complete results are in Appendix F, Table F.14.

**Gender.** Although female claimants were overrepresented in long-term disability cases, (see Section B) they were 2 (two years) to 3 (three years) percentage points less likely to remain out of work after having LWEC at one year. We could not detect this pattern for occupational illness cases.

**Age.** Traumatic injury cases involving prime-age workers were more likely to return to full-time work than cases involving older or younger workers. Relative to prime-age workers (those 25 to 54), traumatic injury cases involving younger workers (those 14 to 24) were 6 percentage points more likely to have LWEC at two years after the report date and 7 percentage points more likely at three years. This difference was smaller for older workers (those 55 or older), 3 percentage points at two years and 4 percentage points at three years. The difference between prime-age and older workers was similar for occupational illness cases.

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[40] The same caveats with the R-squared statistics discussed in Section B apply here. In contrast to the strong relationships between case management indicators and groups indicating injury severity described in Chapter IV, these statistics suggest that case management indicators had a relatively weak relationship with work outcomes. An important difference is that the indicators of injury severity were measured at the same time (the first year of the case) as the case management indicators, whereas this analysis attempts to use case management indicators at one year to predict subsequent work outcomes.

[41] We performed a similar analysis (not reported) that adjusted for differences in case characteristics but not case management indicators. Although controlling for case management histories could in principle alter the associations detected with case characteristics discussed in this section, in practice the analyses have similar results. This suggests that case management indicators at one year have relatively weak relationships with case characteristics.

**Dependents.** Dependent status did not have a significant relationship with return to work among long-term disability claimants.

**County unemployment rate.** Traumatic injury work outcomes varied minimally by county unemployment rate. A 1 percentage point increase in unemployment rate was associated with a decrease of less than 1 percentage point in the likelihood that a case had LWEC at two or three years.

**Employing department.** Although Postal Service employees were overrepresented in long-term disability cases, (see Section B) they were more likely to return to work after having LWEC at one year. Most notably, traumatic injury cases reported by Department of Homeland Security employees were 5 percentage points more likely to have LWEC at two or three years than otherwise similar Postal Service cases. Differences were more pronounced for occupational illness, although fewer differences were statistically significant.

**Occupation.** After controlling for other characteristics, the claimant's occupation was not significantly related to LWEC at two or three years among long-term disability cases.

**Nature of injury.** Although wounds were slightly underrepresented among long-term disability traumatic injury cases (see Section B), these cases were slightly less likely to return to work. Compared with otherwise similar sprain injuries, cases with wounds were 2 (two years) to 3 (three years) percentage points more likely to have LWEC. This difference was much larger for occupational illness cases, in which wound cases were 39 percentage points more likely to remain out of full-time work at the end of the third year.

**Area of injury.** The likelihood of LWEC at two or three years differed significantly by area of injury. Traumatic injury cases with shoulder injuries were 10 (at two years) to 11 (at three years) percentage points less likely than cases with external injuries to have LWEC, the largest such difference. Occupational illness cases showed similarly large differences by area of injury.

**Cause of injury.** The cause of injury was not significantly related to LWEC at two or three years among long-term disability cases.

**District office.** The likelihood a case had LWEC at two or three years differed widely among district offices. For instance, traumatic injury cases handled by the New York City office were 6 percentage points more likely to have LWEC at three years than cases reported in Jacksonville, the office that received the most cases. On the other end of the spectrum, cases handled by the Boston office were 9 percentage points less likely to have LWEC at three years relative to Jacksonville. Occupational illness cases had similarly large variation in LWEC outcomes across offices, but the offices with the most favorable outcomes did not align between traumatic injury and occupational illness cases.

**Year reported.** Compared with traumatic injury cases reported in 2005, cases reported in later years were 5 (2008) to 8 (2006) percentage points less likely to have LWEC at two or three years. Fewer differences were evident across years for occupational illnesses.

### 2. Case Management Indicators

This subsection describes the associations between LWEC (at two and three years) and case management indicators among long-term disability cases, detected as part of the same regression analysis (Appendix F, Table F.14). The analysis shows that cases receiving more service referrals

were generally more likely to remain in LWEC status at two or three years. These associations are expected given that more severe cases are likely to receive more services and to have less favorable work outcomes. Although the medical services and service referrals are intended to improve work outcomes, this analysis is unable to measure their effectiveness.

**Days to primary adjudication.** Traumatic injury cases were slightly more likely to remain in LWEC status if they took from 1 to 59 days to adjudicate. Compared with traumatic injury cases adjudicated on the same day, those adjudicated in 1 to 29 days were 5 percentage points more likely to have LWEC at two and three years, whereas those adjudicated in 30 to 59 days were 4 percentage points more likely. One possible explanation is that cases requiring more time to adjudicate were more likely to involve complex injuries that required more recovery time, even two or three years after the case was opened. Occupational illness cases did not exhibit a similar relationship.

**Medical benefits.** Medical benefits paid on behalf of long-term disability claimants had little relationship with long-term work outcomes. An increase in any type of medical payments of $1,000 was associated with at most a 2 percentage point difference in the likelihood of LWEC at two or three years.

**Field nurse referral.** Long-term disability traumatic injury cases referred to a field nurse were 6 percentage points less likely to have LWEC at two or three years than similar cases without a field nurse. The difference reflects a combination of factors, including the effect of the nurse intervention on work outcomes and the underlying differences in cases not captured by characteristics or other management indicators.[42] However, this analysis is unable to distinguish among these contributing factors. Occupational illness cases did not have a comparable significant difference.

**COP nurse referral.** Long-term disability traumatic injury cases referred to a COP nurse were 12 to 13 percentage points more likely to have LWEC at two years and three years, respectively, compared with cases without a COP nurse. Given that COP nurses are assigned to cases that miss work shortly after the injury, COP nurse assignment might be a proxy for an early disability.

**Second-opinion examination.** Long-term disability traumatic injury cases referred for a second-opinion examination were 6 percentage points more likely to have LWEC at two or three years than similar cases without the referral. Occupational illness cases showed a larger difference, with second-opinion cases being 11 (two years) and 12 (three years) percentage points more likely to have subsequent LWEC. Given that cases with more complex injuries and illnesses are expected to be referred for a second opinion more frequently, this association is likely to reflect a difference in complexity.

**Vocational rehabilitation referral.** Long-term disability traumatic injury cases referred for vocational rehabilitation were 7 percentage points more likely to have LWEC at two or three years than similar cases without the referral. Occupational illness cases again showed a larger difference, with vocational rehabilitation cases being 12 (two years) and 11 (three years) percentage points more likely to have subsequent LWEC. Like a second opinion, a vocational rehabilitation referral is likely to reflect greater complexity or severity of the case.

[42] In addition, data limitations discussed in Appendix E could lead some cases to be incorrectly coded as having LWEC at two or three years. If these cases were also less likely to have a field nurse referral, a negative relationship between LWEC and nurse referral would be observed.

## D. Discussion

A minority of traumatic injury cases had any compensable lost time outside of the COP period, but many of those that did had extensive lost time. By the end of the third year, 10 percent of traumatic injury cases had accumulated any days of lost time, but about half of those had 180 calendar days or more of lost time. In fact, the average case with lost time missed work for nearly 300 calendar days. Occupational illness cases had a greater proportion of cases with lost time (19 percent), but a similar proportion of these cases accumulated 180 calendar days or more of lost time.

Workers who missed work early in the case and did not return to work quickly were unlikely to return to work within three years of the report date. Only one-fifth of traumatic injury cases and one-third of occupational illness cases with LWEC at one year had returned to full-time work at the end of the third year. The rate at which claimants returned to work slowed over the first three years. Furthermore, traumatic injury claimants with extensive lost time typically accumulated that lost time starting soon after an injury was reported, with most reaching 180 calendar days in the first year. By contrast, occupational illness cases with extensive lost time sometimes began to accumulate that lost time one year or more after the case was reported.

Some characteristics were associated with work outcomes at one year, but characteristics explained only a small proportion of the variation in outcomes. This indicates that the case characteristics available in the OWCP administrative database alone are insufficient to predict which cases will have more favorable outcomes with meaningful accuracy. The characteristics most strongly related to lost time and LWEC at one year were employing department, injury characteristics, and district office. Traumatic injury cases reported in 2005 also had notably worse outcomes than those filed in later years.

Among long-term disability cases, some characteristics and case management indicators at one year were associated with LWEC at two or three years. However, these associations were also weak, suggesting that predicting long-term disability cases that will return to work based on information recorded at the end of the first year would be quite difficult. Employing department, injury characteristics (especially the area of the injury), and district office again had the strongest relationship with the work outcomes studied. In addition, long-term disability cases with more service referrals in the first year were generally more likely to retain their LWEC status to two or three years, most likely because service referrals are targeted to the cases expected to have the least favorable outcomes.

# VI. SUMMARY AND LOOKING AHEAD

FECA provides workers' compensation coverage to all civilian employees of the United States government, except those paid from nonappropriated funds. It is the only recourse for a work-related injury or illness for covered employees and, like most other worker's compensation programs, aims to minimize unproductive time spent away from work and speed the return to work, be it modified work or the pre-injury job.

## A. Study Findings

This study used administrative data on FECA cases to quantitatively address return-to-work issues and systematically describe cases under FECA. The large number of cases analyzed—close to one million—and the consistency of the case management procedures applied to FECA cases afford a unique opportunity to provide insights into return-to-work issues that apply to virtually all workers' compensation programs while providing OWCP with a description of the cases it handles. The data enabled us to draw three insights about FECA activities that add to the general knowledge of workers' compensation programs.

1. **A small proportion of cases received disproportionate amounts of services.** Most cases received few benefits and services in the first year after the injury was reported, although a small proportion received substantial services consistent with severe injuries. The vast majority (93 percent) of traumatic injury cases and 86 percent of occupational illness cases received no compensation for lost wages in the first year. Further, although at least one physician visit was common among traumatic injury cases, other medical services were relatively uncommon. At least 70 percent of cases received no reimbursed hospital or pharmacy visits and fewer than 10 percent received a field nurse referral. However, of the cases that did receive compensation for lost time, about 40 percent received compensation for 120 calendar days or more.

   The small proportion of cases in the intensive support group (that is, those judged to have the most severe injuries) received substantially more compensation, medical benefits, and service referrals per case than any other group. These cases received more than double (on average) the payments in compensation, physician services, and hospital services than cases in the some lost time group, which in turn received much more than medical only cases. Furthermore, the proportion of cases in the intensive support group increased from 2005 to 2010.

These findings are generally consistent with previous research on other workers' compensation programs. BLS data showed that 30 percent of injured private sector, state government, and local government employees missed any days from work due to the reported injury, but nearly half of those with any lost time (45 percent) had more than 14 days of lost work (BLS 2011a, 2011b). We find that FECA cases were less likely to have any lost time (excluding the COP period) compared with these reported cases, but we also focus on the extensive periods of lost time that were common among the relatively small group receiving compensation. Furthermore, the fact that the most severe FECA cases (as identified by selection for the DM system) received the most medical services and service referrals could suggest that OWCP staff members are able to identify these high-need cases. This finding suggests that workers' compensation programs might benefit more from research on how to meet the needs of the most severe cases than they would from research on identifying those cases.

2. **The average occupational illness case consumed more resources than the average traumatic injury case because a larger proportion needed substantial resources.** Traumatic injury cases were more likely than occupational illness cases to fall into groups with lower severity. A majority of traumatic injury cases fell into the medical only group, with a relatively small proportion in the group indicating greater injury severity. Cases in the medical only group represented 83 percent of traumatic injury and 38 percent of occupational illness cases (although denied cases were more common among occupational illnesses cases). Further, a greater proportion of occupational illness cases were in the some lost time and intensive support groups than traumatic injury cases.

   The high proportion of occupational illness cases in the intensive support group explains why illness cases received more benefits on average. Occupational illness cases were about twice as likely as traumatic injury cases to fall into the intensive support group, and nearly three times as likely to fall into the some lost time group. Because the average compensation and medical benefits paid were roughly comparable between occupational illness and traumatic injury cases in those groups, the higher average cost of occupational illness cases relative to traumatic injury cases appears to have been driven by the higher proportion of severe occupational illness cases.

Little other research has contrasted traumatic injury and occupational illness cases, perhaps because other workers' compensation programs tend not to have substantially different procedures for handling the two types of cases, as in FECA. The sharp differences that we find between traumatic injury and occupational illness cases suggest that other programs might benefit from distinguishing between these two types and allocating resources appropriately.

3. **Although most workers did not experience any lost time from work, injured workers who missed work early in the case and did not return to work quickly were unlikely to return to work within three years of the report date.** Only 10 percent of traumatic injury cases and 17 percent of occupational illness cases experienced lost time from work during the first year after their reported injury. However, only one-fifth of traumatic injury cases and one-third of occupational illness cases with LWEC at one year had returned to full-time work at the end of the third year. Further, the rate at which claimants returned to work slowed over the first three years. The pattern differed slightly between traumatic injury and occupational illness cases. Traumatic injury claimants with extensive lost time typically accumulated this lost time starting soon after an injury was reported, with most reaching 180 calendar days in the first year, whereas occupational illness cases with extensive lost time sometimes began to accumulate that lost time one year or more after the case was reported.

Although many other studies have examined rates of return to work, most focused on a narrow group of cases, such as a specific injury type, occupation, or state. Other research has also examined a variety of interventions intended to assist claimants in returning to work, and many focused on implementing those interventions soon after the claimant begins to miss work (Seabury et al. 2011; Franche et al. 2005; Bernacki et al. 2003). Our findings for FECA, which represents a wide range of claimants across the nation, underscore this emphasis on early return to work. Although the study is not designed to measure the effectiveness of any interventions, the drop in rates of return to work suggests that soon after the start of lost time might be a prudent time to intervene in a case.

## B. Enhancing Data Capacity for Research

Our analysis of FECA administrative data on claims has led us to identify areas in which the data can be strengthened. These suggested changes could improve the quality of the existing research and open doors for future research:

- **Collect data on work outcomes that take place during the continuation of pay (COP) period.** Research on the first 45 days after traumatic injuries occurred is likely to produce policy-relevant findings, because the overwhelming majority of claimants with traumatic injuries return to work at some point during that period (or do not miss any work). Currently, OWCP does not collect data on work outcomes that take place during the COP period because the employing agency pays compensation benefits during the first 45 days.
- **Reduce the frequency of missing data on case characteristics.** When policymakers and program administrators rely on research studies to inform their decisions, it is important that missing data are kept to a minimum so that the sample used in the study matches the program caseload for each population subgroup. Although many case characteristics, such as age and gender, are rarely missing in the data for this study, the missing data rates for occupation, nature of injury, and cause of injury exceed 10 percent.
- **Reduce the frequency of missing data on case events.** Program administrators might be interested in days of field nurse intervention or LWEC at one year (for example), yet data errors in these variables might lead them to draw erroneous conclusions and, as a result, make incorrect decisions. It is therefore crucial that the data on events be complete. The OWCP administrative data systems must include all events and each event must also have a correct start and end date.
- **Adopt standard and precise definitions of employment and injury.** Policymakers and administrators might want to compare FECA processes or outcomes with those in other workers' compensation programs. This comparison is made difficult because OWCP currently uses some coding schemes that are not widely employed in research studies. We therefore recommend that OWCP adopt more standard classification codes for occupations and natures of injury to allow for a straightforward linkage between studies using OWCP data and other research.
- **Collect data on other factors that may affect work outcomes.** The OWCP administrative data contain limited information on claimant demographic characteristics, employment conditions at the time of injury, the pre-injury health of the claimant, and medical services provided by employers, yet these factors are likely to influence the speed at which a claimant can return to work. We recommend that OWCP collect data on these other factors to facilitate expanding the research capacity of the data, but we acknowledge that some of these data items might be complex and costly to collect. Our recommendation is not based on costs, but on the usefulness of research studies that could use these data.

## C. Recommendations for Future Research

This research opens a door for future research to use the FECA administrative data to study issues in workers' compensation programs. As the first study that creates and investigates an analytic data set based on FECA administrative data, it shows that data collected for the purpose of

managing FECA cases can be useful for addressing important research questions about the FECA program and about workers' compensation in general. Many questions not answered in this study could be addressed with further processing and analysis of the existing administrative data or with improvements to the data:

- **Was the timing of when claimants receive benefits and service referrals associated with work outcomes?** The study's finding that claimants not returning to work quickly tended to remain out of work suggests that the actions taken early in the case might warrant further study. Although this study compared work outcomes with services and benefits delivered over a one-year period, examining the *timing* of the services and benefits might provide insights into promising strategies for promoting return to work early in the case. The case management indicators that we calculate at one year could be recalculated for other intervals, such as month by month. Examining case management indicators in shorter time intervals would facilitate an analysis of the provision of new benefits and services to a case as it unfolds and of the relationships between the timing of benefits and service referrals and work outcomes. Indeed, previous research has indicated that early medical treatment is correlated with returning to work. Further administrative data analysis could also lay the foundation for an evaluation of specific programs or practices, which would require additional data collection.

- **Were benefits and services provided consistently across the district offices?** Our analysis indicates that work outcomes differ by district office. One potential explanation for this result is that procedural differences led the provision of benefits and services to vary by district office. For example, claims examiners in certain offices might have been more likely to refer cases to field nurses than would other offices handling similar cases. The variation in work outcomes could have been due to differences in cases across districts that are not captured by data on characteristics, but they might have also been due to the effect of the different service referrals. Accordingly, these differences might afford an opportunity to study how procedures for service referrals are correlated with work outcomes.

- **How was compensation distributed to claimants?** Our analysis finds large differences across cases in the work outcomes and services delivered to claimants. Work outcomes and service delivery are likely to have been closely correlated with disability compensation paid to the claimant, which might be of interest to policymakers for fiscal reasons or simply as an alternative measure of case outcomes. For instance, our analysis did not focus on the pay status of a case, which determines the level of payments authorized for the case. Examining the claimants entitled to payments on a daily or periodic roll or summarizing the total compensation paid in various time periods might provide a different view on case outcomes.

- **How did employees in a particular employing department progress through the system?** We find that the most common employing department among both traumatic injuries and occupational illnesses was the Postal Service. It might be worth conducting a study of how these claimants differed from all others. For example, what types of injuries and illnesses were most common among Postal Service employees and how did they differ from all other departments? Understanding these differences could provide insights into strategies for promoting better outcomes in this large group of cases.

# REFERENCES

Banks, Michael H. "Psychological Effects of Prolonged Unemployment: Relevance to Models of Work Re-Entry Following Injury." *Journal of Occupational Rehabilitation,* vol. 5, no. 1, 1995, pp. 37–53.

Belton, Sharon E. "Factors Influencing Return to Work for Injured Workers: Lessons from Pennsylvania and Wisconsin." Cambridge, MA: Workers Compensation Research Institute, 2011.

Bernacki, Edward J., Jill A. Guidera, John A. Schaefer, and Shan Tsai. "A Facilitated Early Return to Work Program at a Large Urban Medical Center." *The Clinical Journal of Pain,* vol. 19, 2003, pp. 105–113.

Boden, Leslie I., and Monica Galizzi. "Income Losses of Women and Men Injured at Work." *Journal of Human Resources,* vol. 38, no. 3, 2003, pp. 722–757.

Boden, Leslie I., and John W. Ruser. "Workers' Compensation "Reforms, Choice of Medical Care Provider, and Reported Workplace Injuries." *Review of Economics and Statistics,* vol. 85, no. 4, 2003, pp. 923–929.

Bowes, Michael D. "Workers' Compensation: The Case for Improved DoN Management." Alexandria, VA: CNA, 2003. Available at [www.public.navy.mil/navsafecen/Documents/Studies/cna03.pdf]. Accessed May 10, 2010.

Breslin, C., M. Koehoorn, P. Smith, and M. Manno. "Age-Related Differences in Work Injuries and Permanent Impairment: A Comparison of Workers' Compensation Claims Among Adolescents, Young adults, and Adults." *Occupational and Environmental Medicine,* vol. 60, no. 9, 2003, pp. e10–e10.

Bureau of Labor Statistics. "Workplace Injuries and Illnesses—2010." Washington, DC: BLS, November 9, 2011a. Available at [http://www.bls.gov/news .release/pdf/osh.pdf]. Accessed May 22, 2012.

Bureau of Labor Statistics. "Nonfatal Occupational Injuries and Illnesses Requiring Days Away from Work, 2010." Washington, DC: BLS, October 20, 2011b. Available at [http://www.bls.gov/news.release/pdf/osh2.pdf]. Accessed May 22, 2012.

Cheadle, Allen, Gary Franklin, Carl Wolfhagen, James Savarino, P. Y Liu, Charles Salley, and Marcia Weaver. "Factors Influencing the Duration of Work-Related Disability: A Population-Based Study of Washington State Workers' Compensation." *American Journal of Public Health,* February 1994, vol. 84, no. 2, pp. 190–196.

Franche, Renée-Louise, Kimberley Cullen, Judy Clarke, Emma Irvin, Sandra Sinclair, and John Frank. "Workplace-Based Return-to-Work Interventions: A Systematic Review of the Quantitative Literature." *Journal of Occupational Rehabilitation,* vol. 15, no. 4, 2005, pp. 607–631.

Gotz, Glenn A., Te-chun Liu, Monica Galizzi. *Predictors of Multiple Workers' Compensation Claims in Wisconsin*. 2000. Workers Compensation Research Institute, Cambridge, Massachusetts.

Government Printing Office. "20 CFR 10.216 — How Is the Pay Rate for COP Calculated?" Washington, DC: GPO, 2012. Available at [http://www.gpo.gov/fdsys/granule/CFR-2012-title20-vol1/CFR-2012-title20-vol1-sec10-216/content-detail.html]. Accessed October 9, 2012.

Huber, Peter J. "The Behavior of Maximum Likelihood Estimation under Nonstandard Conditions." In *Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability 1*, edited by L.M. LeCam and J. Neyman. Berkeley, CA: University of California Press, 1967.

Johnson, William G., and Jan Ondrich. "The Duration of Post Injury Absences from Work." *Review of Economics and Statistics,* vol. 72, no. 4, November 1990, pp. 578–586.

Kirsh, Bonnie, Tesha Slack, and Carole Anne King. "The Nature and Impact of Stigma Towards Injured Workers." *Journal of Occupational Rehabilitation,* vol. 22, no. 2, 2012, pp. 143–154.

Leigh, J. Paul, Steven Markowitz, Marianne Fahs, and Phillip Landrigan. *Costs of Occupational Injuries and Illnesses*. Ann Arbor, MI: University of Michigan Press, 2000.

Liao, Hui, Richard D. Avery, Richard J. Butler, and Steven M. Nutting. "Correlates of Work Injury Frequency and Duration Among Firefighters." *Journal of Occupational Health Psychology,* vol. 6, no. 3, 2001, pp. 229–242.

MacKenzie, Ellen J., Sam Shapiro, Richard T. Smith, John H. Siegel, Mark Moody, and Audrey Pitt. "Factors Influencing Return to Work Following Hospitalization for Traumatic Injury." *American Journal of Public Health,* vol. 77, no. 3, 1987, pp. 329–334.

MacKenzie, Ellen, J., Sam Shapiro, Richard T. Smith, John H. Siegel, Mark Moody, and Audrey Pitt. "Factors Influencing Return to Work Following Hospitalization for Traumatic Injury." *American Jounral of Public Health,* vol. 77, no. 3, March 1987, pp. 329-334.

McLaren, Christopher F., Robert T. Reville, and Seth A. Seabury. "How Effective Are Employer Return to Work Programs?." RAND working paper WR-745. Arlington, VA: RAND, 2010.

Missouri Census Data Center. "MABLE/Geocorr2K: Geographic Correspondence Engine with Census 2000 Geography." Jefferson City, MO: Missouri Census Data Center, 2010. Available at [http://mcdc2.missouri.edu/websas/geocorr2k.html]. Accessed October 12, 2012.

Neumark, David. "The Workers' Compensation Crisis in California." *California Public Policy,* vol. 1, 2005, pp. 1–19.

Occupational Safety and Health Administration. "Making the Business Case for Safety and Health." Washington, DC: OSHA, n.d. Available at [http://www.osha.gov/dcsp/products/topics/businesscase/costs.html]. Accessed May 29, 2012.

Ruseckaite, Rasa and Alex Collie. "Repeat Workers' Compensation Claims: Risk Factors, Costs and Work Disability." *BMC Public Health*, vol. 11, June, 2011, pp. 492-500.

Seabury, Seth A., Christopher McLaren, Robert T. Reville, Frank Neuhauser and John Mendeloff, "Workers' Compensation Experience Rating and Return to Work," *Policy and Practice in Health and Safety*. vol. 10, no. 1. 2012. pp. 69-87.

Seabury, Seth A., Robert T. Reville, Stephanie Williamson, Christopher F. McLaren, Adam H. Gailey, Elizabeth Wilke, and Frank W. Neuhauser. *Workers' Compensation Reform and Return to Work*. Arlington, VA: RAND, 2011.

Sengupta, Ishita, and Virginia Reno. "Recent Trends in Workers' Compensation." *Social Security Bulletin,* vol. 67, no. 1, 2007, pp. 17–26.

Sengupta, Ishita, Virginia Reno, and John F. Burton, Jr. *Workers' Compensation: Benefits, Coverage, and Costs*, *2010*. Washington, DC: National Academy of Social Insurance, 2012.

Solis, Hilda M. "The New Presidential POWER Initiative: Protecting Our Workers and Ensuring Reemployment." Memorandum for the heads of executive branch departments and agencies. Washington, DC: U.S. Department of Labor, September 21, 2010. Available at [http://www.dol.gov/owcp/dfec/power/POWERMemofromSecretarySolis.pdf]. Accessed February 14, 2012.

SRA International. "Federal Employees' Compensation Act (FECA) Program Impact Evaluation." Final report submitted to OASAM under contract #GS-23F-9806H, delivery order #DOLF099629552. Fairfax, VA: SRA International, 2011.

SRA International. "Department of Labor Evaluation of the Employment Standards Administration Federal Employees' Compensation Program: Dual Tracking of DFEC Quality Case Management Nurse and Vocational Rehabilitation Processes." Final report submitted to OASAM. DCN: FECA Report 0909. Fairfax, VA: SRA International, n.d.

Szymendera, Scott. "Reviewing Workers' Compensation for Federal Employees." Washington, DC: United States House of Representatives Committee on Education and the Workforce, May 12, 2011.

U.S. Department of Labor, Division of Federal Employees' Compensation. "FECA Procedure Manual, Part 2." Washington, DC: DOL, 2012 (updated from 1995 publication date). Available at [http://www.dol.gov/owcp/dfec/regs/compliance/DFECfolio/FECA-Part2.pdf]. Accessed March 13, 2012.

U.S. Department of Labor. "Questions and Answers About the Federal Employees' Compensation Act." Publication CA-550. Washington, DC: DOL, 2002. Available at [http://www.dol.gov/owcp/dfec/regs/compliance/DFECFolio/q-and-a.pdf]. Accessed January 19, 2012.

U.S. Department of Labor. "Injury Compensation for Federal Employees." Publication CA-810. Washington, DC: DOL, 2009. Available at [http://www.dol.gov/owcp/dfec/regs/compliance/DFECfolio/CA-810.pdf]. Accessed January 19, 2012.

U.S. Department of Labor, Bureau of Labor Statistics. "Local Area Unemployment Statistics." Washington, DC: DOL, BLS, 2012. Available at [http://www.bls.gov/lau/data.htm]. Accessed October 12, 2012.

U.S. Department of Labor. "Federal Employees' Compensation Act." Washington, DC: DOL, n.d.a. Available at [http://www.dol.gov/owcp/dfec/regs/statutes/feca.htm]. Accessed October 10, 2012.

U.S. Department of Labor. "Department of Labor Reference Tables." Washington, DC: DOL, n.d. b. Available at [http://www1.dol-esa.gov/AgcyData]. Accessed October 10, 2012.

van der Naalt, J., A.H. van Zomeren, W.J. Sluiter, and J.M. Minderhoud. "One-Year Outcome in Mild to Moderate Head Injury: The Predictive Value of Acute Injury Characteristics Related to Complaints and Return to Work." *Journal of Neurology, Neurosurgery, and Psychiatry,* vol. 66, no. 2, 1999, pp. 207–213.

White, Halbert. "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity." *Econometrica,* vol. 48, no. 4, May 1980, pp. 817–830.

# APPENDIX A

# OWCP ADMINISTRATIVE DATABASE

This appendix describes the construction of the Office of Workers' Compensation Programs (OWCP) Administrative Database. We developed the database from the administrative data systems used by OWCP to manage its activities under the Federal Employee's Compensation Act (FECA). Federal employees with work-related traumatic injuries or occupational illnesses must report them to OWCP to claim workers' compensation benefits.[43] When they do, OWCP opens a case for each injury or illness to manage the benefits and service referrals provided to the claimant.

OWCP provided Mathematica Policy Research with six files extracted from its administrative data systems on March 10, 2012. These files contained data on cases opened from January 1, 2005, through March 9, 2012. Table A.1 presents selected details of each file. The New Case Management (NCM) file contains data on the case characteristics that were in place when an injury or illness was reported. The other five files contain data on the benefit, service referral, and work outcome events that occurred in each case; thus, these files can contain multiple records per case. We augmented these data with the unemployment rate of the claimant's county of residence at the report date to the NCM file. The data come from the Bureau of Labor Statistics (BLS) Local Area Unemployment Statistics (LAUS) (U.S. Department of Labor, Bureau of Labor Statistics 2012). This program produces estimates of the annual unemployment rate for each county every year.

**Table A.1. Description of the Files from OWCP**

| File | Abbreviation | Description | Number of Records | Number of Cases |
|---|---|---|---|---|
| New Case Management | NCM | Characteristics of each case. Each record provides characteristics of a single case. | 951,861 | 951,861 |
| Case Status | CS | Decisions made by the claims examiner for each case over time. Each record represents an update of the adjudication or pay status of a case. | 3,027,861 | 951,861 |
| Bill Pay | BP | Medical benefits reimbursed for each case over time. Each record represents a period of medical benefits that is reimbursed in a case. | 26,916,823 | 639,235 |
| Automatic Compensation Payment System | ACPS | Compensation benefits provided in each case over time. Each record represents a payment made in a case. | 1,332,643 | 115,039 |
| Disability Management | DM | Service referrals and work outcomes over time for cases in the DM system. Each record represents a referral or work outcome update in a case. | 715,981 | 91,666 |
| Continuation of Pay Nurse | CN | Continuation of pay (COP) nurse referrals for each case over time. Each record represents a COP nurse referral in a case. | 82,171 | 81,731 |

[43] Federal employees report traumatic injuries with Form CA-1 and occupational illnesses with Form CA-2. Spouses or dependents report fatal traumatic injuries or occupational illnesses with Form CA-5.

We used these files to create the OWCP Administrative Database in a five-step process: (1) incorporated unemployment data from BLS, (2) de-identified the data, (3) created case characteristics, (4) created case management indicators and work outcomes, and (5) created one- and three-year analytical samples. We describe each step in this appendix.

**1. Incorporated unemployment data from the BLS**

In the first step of developing the database, we mapped zip codes in 2010 to counties in 2010 because the finest geographic level in the NCM file is the zip code.[44] If the zip code boundary was the same as or within the boundary of a county, we assigned the zip code the unemployment rate of that county. If the zip code boundary mapped to more than one county, we assigned the zip code the weighted average of the county unemployment rates. The weight used in this average was the county population in 2010. Without this approach, cases could be ascribed unemployment rates that did not reflect the rates of the county.

**2. De-identified the data**

In the second step, we removed or modified data elements that could be used to determine the identity of claimants or cases, both for data security and creating a public use data file. Data de-identification could not be the first step in constructing the data base, because zip codes were needed to incorporate the BLS data into the files received from OWCP. To de-identify the data, we created a random identification number for each case and attached it to each file using the OWCP case identification code or case number. OWCP case identification codes and case numbers in each file were then deleted. The location of claimants' residences was also masked by replacing the zip code with a randomly created number. The unemployment rates were rounded to the nearest percentage point to further obscure the geographic location of claimants.

**3. Created case characteristics**

In the third step, we used variables in the NCM to prepare case characteristics for use in analysis. We used the administrative data system codebooks (U.S. Department of Labor n.d.[b]) to recode the variables for analytic use.[45] For many of these variables, creating the case characteristics was straightforward using the relevant data fields. Most of these variables were binary or categorical. For the following variables, the process was more complex:

- **Employing department.** We used the OWCP codebook to identify the employing department from the employing agency and then collapsed the agencies to the cabinet level. We then collapsed cabinets to the departments that represented at least 5 percent of cases to focus the discussion.[46]

[44] We identified the 2010 zip codes that overlapped with each zip code in the NCM file and with each 2010 county using the MABLE/Georcorr2K conversion engine (Missouri Census Data Center 2010).

[45] Appendix B provides a definition of all variables used in this study.

[46] The 5 percent calculation for occupation, nature of injury, and cause of injury is based on the one-year sample.

- **Occupation.** We created a cross-walk to recode the Occupational Safety and Health Administration (OSHA) occupation codes in the NCM file into 2000 Standard Occupation Classification (SOC) codes. We then collapsed the codes to the two-digit broad SOC occupations that represented at least 5 percent of cases to focus the discussion.
- **Nature of injury.** We grouped the natures of the injury in the NCM file into five broad categories (back, pain, sprain, wound, and other) to focus the discussion. Each category represented at least 5 percent of the cases.
- **Cause of injury.** We grouped the causes of injury in the NCM file into five broad categories (animal or insect, fall, handling mail, handling manual equipment, and other) to focus the discussion. Each category represented at least 5 percent of the cases.

**4. Created case management indicators and work outcomes**

In the fourth step, we prepared the database of case management indicators and work outcomes using the Case Status (CS), Bill Pay (BP), Automated Compensation Payment System (ACPS), Disability Management (DM), and COP Nurse (CN) files. We also used the report date from the NCM file to recode the event date variables to days relative to the report date (which was the key reference point [time 0] for our analysis). We established the explicit start and stop dates for each benefit, service referral, and work outcome event. Some of these events have explicit start and end dates, such as those for compensation benefits and physician visits. Other events, such as adjudication status, have only explicit start dates. In these instances, we assigned the explicit end date to be the start date of the next event of the same type, if there was one. Otherwise, we assigned the explicit end date to be the date that we received the files from OWCP.

We combined the files to verify likely errors in start and end dates based on anticipated timing patterns for each type of event. For example, there should be no compensation benefit events during the COP period in traumatic injury cases. We studied the patterns in the distribution of earliest event start dates among two-week intervals to allow for some administrative churning in start and end dates. Although many events exhibited the expected patterns, some did not. As a result, we constructed rules to determine which event start and end dates were valid and which were likely to be invalid. These rules differed systematically by the type of injury and by the file. For the traumatic injury cases, we imposed the following rules:

- CS events can start at the report date or later because the most common interval was the report date to 13 days after the report date.
- BP events can start 14 days before the report date or later because the most common interval was from one to 14 days before the report date.
- ACPS events can start 45 days after the report date or later because FECA compensation benefits are not provided during the COP period.
- DM events can start 45 days after the report date or later because the work outcomes variables are based on both ACPS and DM events.
- CN events can start at the report date or later because the most common interval was the report date to 13 days after the report date.

For the occupational illness cases, we imposed the following rules:

- CS events can start at the report date or later because the largest percentage increase in the number of cases was the report date to 13 days after the report date.
- BP events can start 14 days before the report date or later because the most common interval was from one to 14 days before the report date.
- ACPS events can start 14 days before the report date or later because the most common interval was from one to 14 days before the report date.
- DM events can begin 14 days before the report date or later because the work outcome variables are based on both ACPS and DM events.
- CN events can begin at the report date or later because the most common interval was the report date to 13 days after the report date.

We changed the event start dates to conform to the rules as needed and dropped events with invalid start and end dates.[47] We used the events to create the case management indicators and work outcomes for each cumulative observation period. These periods start at the earliest valid day and end at 91, 365, 731, and 1,096 days after the report date. These periods correspond to one-quarter of a year, one year, two years, and three years after the report date. We computed these variables only with the events that occurred during the observation period. If only part of the event took place during the observation period, we included only that part in the variable construction process. For example, suppose a physician visit started 364 days after the report date and ended 366 days after the report date. The number of physician visits in the one-year observation period would then include only the portion from 364 to 365 days after the report date. The amount reimbursed for this visit would be the prorated amount based on the fraction of days in the observation window.

**5. Created one- and three-year analytical samples**

In the last step, we created the data set used in the analysis. We first merged the case characteristics with the case management indicators and work outcomes. The merging process was based on the case identification variable discussed in Section C. After merging, we created the two analytical samples. The first sample consisted of cases in which all cases in the report year had data for the one-year observation period (the one-year sample). Only cases reported in 2005 through 2010 are in this sample. The cases reported in 2011 and 2012 will have missing data because there is not a sufficient follow-up period for them. For example, the one-year observation period for a case reported on December 31, 2011, ended on December 30, 2012. However, the source files were created on March 10, 2012, so the observation period cannot be observed. The second sample is the three-year analytical sample, which is defined in an analogous way. Only cases reported in 2005 through 2008 are in the sample. These restrictions, and several additional sample restrictions to maintain data quality, reduce the sample size as shown in Table A.2. Additional restrictions that resulted in small further reductions in sample sizes are as follows:

[47] Events with start and end dates before the earliest valid date were not included in the variable construction process. Events that started on the date the extracts were created (March 10, 2012) were also excluded from the process.

- **Cases are opened after they are reported.** We required cases to be open before they were reported. This restriction ensures that the number of days until a case was opened is 0 or more. We dropped 38 cases in the one-year sample and 37 cases in the three-year sample because of this restriction.
- **Occupational illness cases do not receive COP benefits.** We required occupational illness cases to not be adjudicated to receive COP benefits. Claimants with occupational illnesses are not eligible to receive this benefit as required by FECA. We dropped 298 cases in the one-year sample and 431 cases in the three-year sample because of this restriction.
- **Cases are first adjudicated after they are opened.** We required cases to be first adjudicated after they were opened. This restriction ensures that the number of days until a case is first adjudicated is 0 or more. We dropped 209 cases in the one-year sample and 197 cases in the three-year sample because of this restriction.
- **Cases are not appealed or suspended.** We required that cases were not remanded to the Employees' Compensation Appeals Board or the Branch of Hearings & Review, was being reconsidered, or was suspended at one time. Developing a time line of benefits and service referrals for these cases is overly complex. We dropped 6,380 cases in the one-year sample and 5,294 cases in the three-year sample because of this restriction.
- **Cases are administered by one of the 12 district offices.** We required cases to not be handled by the national office because that office handles only cases that are being appealed. Developing a time line of benefits and service referrals for these cases is overly complex. We dropped 26 cases in the one-year sample and 23 cases in the three-year sample because of this restriction.
- **Cases do not result in a fatality.** We required cases to not indicate that the claimant died because they do not fit with OWCP's objective of facilitating employees' return to work. We dropped 1,398 cases in the one-year sample and 851 cases in the three-year sample because of this restriction.

**Table A.2. Sample Size Restrictions and Sample Size Reduction in the OWCP Administrative Database**

| Sample Restrictions | Number of Cases in the One-Year Analytical Sample | Number of Cases in the Three-Year Analytical Sample |
|---|---|---|
| **All Cases in Extracts from OWCP** | **951,861** | **951,861** |
| All cases in report years have data in observation period | 809,140 | 552,882 |
| Cases are opened after they are reported | 809,102 | 552,845 |
| Occupational illness cases do not receive COP benefits | 808,804 | 552,414 |
| Cases are first adjudicated after they are opened | 808,595 | 552,217 |
| Cases are not appealed or suspended | 802,215 | 546,923 |
| Cases are administered by one of the 12 district offices | 802,189 | 546,900 |
| Cases do not result in a fatality | 800,791 | 546,049 |
| **Number of Cases** | **800,791** | **546,049** |

Note: Numbers are pooled across 2005, 2006, 2007, 2008, 2009, and 2010 cases in the one-year sample. Numbers are pooled across 2005, 2006, 2007, and 2008 cases in the three-year sample.

# APPENDIX B

# VARIABLE CONSTRUCTION

This appendix describes the variables we used in our analyses. The description begins by showing the number of cases with missing data for each variable (Table B.1). In these cases, the analytic value is set to missing. The variables typically had missing values when the source variables in the files transmitted by the Office of Workers' Compensation Programs (OWCP) had missing values. In some instances, such as occupation, missing data could be due to problems in constructing cross-walks between the raw data to the coding systems.

**Table B.1. Variables with Missing Values**

| Case Characteristic | Number of Cases with Missing Values in the One-Year Analytical Sample | Number of Cases with Missing Values in the Three-Year Analytical Sample |
|---|---|---|
| **Demographic Characteristics** | | |
| Female | 85 | 85 |
| Age in years | 7,792 | 4,815 |
| **County Unemployment Rate** | | |
| County unemployment rate | 35,983 | 24,880 |
| **Pre-Injury Employment Characteristics** | | |
| Occupation | 229,213 | 153,794 |
| **Injury Characteristics** | | |
| Nature of injury | 123,758 | 89,265 |
| Area of injury | 2,008 | 1,284 |
| Cause of injury | 238,787 | 163,482 |
| **Number of Cases** | **800,791** | **546,049** |

Note: Variables not listed in the table do not have missing values.

The next set of tables describes how each analytic variable was constructed. In describing these variables, we frequently used terms defined in Appendix C. The first column of each table provides the name of the analytic variable as it is used in the data tables in Appendix F. The second column provides the abbreviated name of the file(s) used to create the analytic variable. The third column provides the name(s) of the variables on those files used to construct the analytic variables. The final column describes the content of the analytic variable. The following abbreviations are used in the tables:

- ACPS = Automated Compensation Payment System
- BP = bill pay
- COP = continuation of pay
- CS = case status
- DM = Disability Management
- LAUS = Local Area Unemployment Statistics
- NCM = New Case Management

Table B.2 describes the variables in the following groups of case characteristics: demographic characteristics, county unemployment rate, pre-injury employment characteristics, injury characteristics, and district office. All variables are captured at the report date.

**Table B.2. Variable Construction for Case Characteristics**

| Variable | Source File(s) | Source Variable(s) | Variable Construction Notes |
|---|---|---|---|
| **Demographic Characteristics** | | | |
| Female | NCM | emp_sex | An indicator variable equal to 1 if the claimant is female and 0 otherwise |
| Age in Years | NCM | dol_rcvd_dt, emp_dob | The number of days from the report date and the claimant's birth date, divided by 365.25, and rounded to the nearest number; cases with values outside the 99th percentile of the age distribution (that is, an age younger than 14 or older than 68) are coded as missing |
| Has Dependents | NCM | dependent_flag | An indicator variable equal to 1 if the claimant has dependents and 0 otherwise |
| **County Unemployment Rate** | | | |
| County Unemployment Rate | NCM, LAUS | zip (no variable names) | The average annual unemployment rate in the county of claimants' residence in the year reported |
| **Pre-Injury Employment Characteristics** | | | |
| Employing Department | | | The options are the U.S. Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, Justice, Labor, State, Interior, Transportation, Treasury, Veterans Affairs, Environmental Protection Agency, Executive Office of the President, Government Printing Office, National Aeronautics and Space Administration, Peace Corps, Social Security Administration, Tennessee Valley Authority, or the United States Postal Service; the departments listed below make up at least 5 percent of all cases with nonmissing data |
| Department of Defense | NCM | agency_code | An indicator variable equal to 1 if the employing department is the Department of Defense and 0 otherwise |
| Department of Homeland Security | NCM | agency_code | An indicator variable equal to 1 if the employing department is the Department of Homeland Security and 0 otherwise |
| Department of Veterans Affairs | NCM | agency_code | An indicator variable equal to 1 if the employing department is the Department of Veterans Affairs and 0 otherwise |

**Table B.2. Variable Construction for Case Characteristics *(continued)***

| Variable | Source File(s) | Source Variable(s) | Variable Construction Notes |
|---|---|---|---|
| United States Postal Service | NCM | agency_code | An indicator variable equal to 1 if the employing department is the United States Postal Service and 0 otherwise |
| Other Departments | NCM | agency_code | An indicator variable equal to 1 if the employing department is listed above and 0 otherwise |
| Occupation | | | Occupations are coded using a cross-walk from the Occupational Safety and Health Administration (OSHA) occupations in the database to the 2000 Standard Occupation Classification (SOC) system; occupations listed below comprise at least 5 percent of cases with nonmissing data |
| Business and financial operations | NCM | occ_code | An indicator variable equal to 1 if the two-digit occupation code is business and financial operations occupations and 0 otherwise |
| Health care practitioners and technical | NCM | occ_code | An indicator variable equal to 1 if the two-digit occupation code is health care practitioners and technical occupations and 0 otherwise |
| Installation, maintenance, and repair | NCM | occ_code | An indicator variable equal to 1 if the two-digit occupation code is installation, maintenance, and repair occupations and 0 otherwise |
| Office and administrative support | NCM | occ_code | An indicator variable equal to 1 if the two-digit occupation code is office and administrative support occupations and 0 otherwise |
| Postal Service workers | NCM | occ_code | An indicator variable equal to 1 if the five-digit occupation code is postal service workers and 0 otherwise |
| Protective service | NCM | occ_code | An indicator variable equal to 1 if the two-digit occupation code is protective service worker and 0 otherwise |
| Other occupations | NCM | occ_code | An indicator variable equal to 1 if the two-digit occupation code is not listed above and 0 otherwise |
| **Injury Characteristics** | | | |
| Type of Injury | | | |
| Traumatic injury | NCM | form_rcvd | An indicator variable equal to 1 if the claimant has a traumatic injury and 0 otherwise |
| Occupational illness | NCM | form_rcvd | An indicator variable equal to 1 if the claimant has an occupational illness and 0 otherwise |

**Table B.2. Variable Construction for Case Characteristics *(continued)***

| Variable | Source File(s) | Source Variable(s) | Variable Construction Notes |
|---|---|---|---|
| Nature of Injury | | | The injuries listed below make up at least 5 percent of all cases with nonmissing data |
| Back | NCM | nature_code | An indicator variable equal to 1 if the nature of the injury is back sprain/strain, back pain, subluxation or back sprain/strain, back pain, or subluxation or invertebratal disc disorder and 0 otherwise |
| Pain | NCM | nature_code | An indicator variable equal to 1 if the nature of the injury is pain/swelling/stiffness/redness in joint or pain/swelling/stiffness/redness not in joint and 0 otherwise |
| Sprain | NCM | nature_code | An indicator variable equal to 1 if the nature of the injury is sprain/strain of ligament, muscle, tendon, or not back and 0 otherwise |
| Wound | NCM | nature_code | An indicator variable equal to 1 if the nature of the injury is contusion, laceration, superficial wounds, or puncture wound and 0 otherwise |
| Other natures | NCM | nature_code | An indicator variable equal to 1 if the nature of the injury is not listed above and 0 otherwise |
| Area of Injury | | | The areas listed below make up at least 5 percent of all cases with nonmissing data |
| Arm | NCM | anat-locn-code | An indicator variable equal to 1 if the area of the injury is the arm and 0 otherwise |
| External | NCM | anat-locn-code | An indicator variable equal to 1 if the area of the injury is external and 0 otherwise |
| Hand | NCM | anat-locn-code | An indicator variable equal to 1 if the area of the injury is the hand and 0 otherwise |
| Head, external | NCM | anat-locn-code | An indicator variable equal to 1 if the area of the injury is external to the head and 0 otherwise |
| Head, internal | NCM | anat-locn-code | An indicator variable equal to 1 if the area of the injury is internal to the head and 0 otherwise |
| Knee | NCM | anat-locn-code | An indicator variable equal to 1 if the area of the injury is the knee and 0 otherwise |
| Leg | NCM | anat-locn-code | An indicator variable equal to 1 if the area of the injury is the leg and 0 otherwise |
| Shoulder | NCM | anat-locn-code | An indicator variable equal to 1 if the area of the injury is the shoulder and 0 otherwise |
| Other areas | NCM | anat-locn-code | An indicator variable equal to 1 if the area of the injury is not listed above and 0 otherwise |

**Table B.2. Variable Construction for Case Characteristics *(continued)***

| Variable | Source File(s) | Source Variable(s) | Variable Construction Notes |
|---|---|---|---|
| Cause of Injury | | | The causes listed below make up at least 5 percent of all cases with nonmissing data |
| Animal or insect (including dog bite) | NCM | anat-locn-code | An indicator variable equal to 1 if the cause of the injury is animals/insects or dog bite and 0 otherwise |
| Fall | NCM | anat-locn-code | An indicator variable equal to 1 if the cause of the injury is fall on floor/work surface/aisle; fall on stairway or steps; fall on walkways/curbs/porches, fall from scaffold or platform; fall from ladder; fall from chair/stool/rest bar; fall from desk/table/workbench; fall into hole/hatch/chute; fall on deck; fall on road/highway/street; fall from stacked cargo; fall on hill or slope; fall from ramp/runway/gangplank; fall off dock; fall from machinery; fall from stopped vehicle; fall getting on/off elevator; fall inside moving vehicle; or fall and 0 otherwise |
| Handling mail | NCM | anat-locn-code | An indicator variable equal to 1 if the cause of the injury is handling packaged material, weight stated; handling packaged material, weight not stated; handling mail containers; or handling magazines or papers and 0 otherwise |
| Handling manual equipment | NCM | anat-locn-code | An indicator variable equal to 1 if the cause of the injury is handling manual equipment and 0 otherwise |
| Slip | NCM | anat-locn-code | An indicator variable equal to 1 if the cause of the injury is slip—not falling or slip/twist/trip—not falling and 0 otherwise |
| Striking against material equipment | NCM | anat-locn-code | An indicator variable equal to 1 if the cause of the injury is striking against material equipment and 0 otherwise |
| Other causes | NCM | anat-locn-code | An indicator variable equal to 1 if the cause of the injury is not listed above and 0 otherwise |
| **District Office** | | | |
| Boston | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is Boston and 0 otherwise |
| Chicago | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is Chicago and 0 otherwise |
| Cleveland | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is Cleveland and 0 otherwise |
| Dallas | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is Dallas and 0 otherwise |

**Table B.2. Variable Construction for Case Characteristics *(continued)***

| Variable | Source File(s) | Source Variable(s) | Variable Construction Notes |
|---|---|---|---|
| Denver | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is Denver and 0 otherwise |
| Jacksonville | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is Jacksonville and 0 otherwise |
| Kansas City | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is Kansas City and 0 otherwise |
| New York City | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is New York City and 0 otherwise |
| Philadelphia | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is Philadelphia and 0 otherwise |
| San Francisco | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is San Francisco and 0 otherwise |
| Seattle | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is Seattle and 0 otherwise |
| Washington, DC | NCM | dist_office_no | An indicator variable equal to 1 if the administrative office is Washington, DC, and 0 otherwise |

Table B.3 describes variables in the following grouping of case management indicator variables: initial progress measures, compensation benefits, medical benefits, and service referrals. The variables are constructed for observation windows that end at one-quarter of a year, one year, two years, and three years after the report date.

**Table B.3. Variable Construction of Case Management Indicators**

| Variable | Source File(s) | Source Variable(s) | Variable Construction Notes |
|---|---|---|---|
| **Initial Progress Measures** | | | |
| Days to Primary Adjudication Date | NCM, CS | case_create_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt | The number of days from the date the case was opened and the date of primary adjudication |
| Primary Adjudication Status | | | The earliest adjudication status for the case |
| Accepted for COP | NCM, CS | dol_rcvd_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt | An indicator variable equal to 1 if the primary adjudication status is indicated by "AC: Condition accepted as compensable; some period of entitlement to continue pay accepted" and 0 otherwise |
| Accepted for medical benefits only | NCM, CS | dol_rcvd_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt | An indicator variable equal to 1 if the primary adjudication status is indicated by "AM: Condition accepted as compensable. If open, entitlement to medical benefits only" or "AT: Condition accepted as work-related but claimant entitled only to medical benefits." and 0 otherwise |
| Denied | NCM, CS | dol_rcvd_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt | An indicator variable equal to 1 if the primary adjudication status is indicated by "D1: Denied as not timely filed, without entitlement to medical benefits"; "D2: Denied; claimant not a civil employee"; "D3: Denied; fact of injury not established"; "D4: Denied; not in performance of duty"; or "D5: Denied; causal relationship not established or disability due to injury has ceased" and 0 otherwise |
| Other status | NCM, CS | dol_rcvd_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt | An indicator variable equal to 1 if the primary status is not listed above and has been adjudicated and 0 otherwise |
| Most Recent Adjudication Status | | | The adjudication status that is closest to the end of the observation period |
| Accepted for COP | NCM, CS | dol_rcvd_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt | An indicator variable equal to 1 if the most recent adjudication status is indicated by "AC: Condition accepted as compensable; some period of entitlement to continue pay accepted" and 0 otherwise |

**Table B.3. Variable Construction of Case Management Indicators *(continued)***

| Variable | Source File(s) | Source Variable(s) | Variable Construction Notes |
|---|---|---|---|
| Accepted for medical benefits only | NCM, CS | dol_rcvd_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt | An indicator variable equal to 1 if the most recent adjudication status is indicated by "AM: Condition accepted as compensable; If open, entitlement to medical benefits only" or "AT: Condition accepted as work-related but claimant entitled only to medical benefits" and 0 otherwise |
| Denied | NCM, CS | dol_rcvd_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt | An indicator variable equal to 1 if the most recent adjudication status is indicated by "D1: Denied as not timely filed, without entitlement to medical benefits"; "D2: Denied; claimant not a civil employee"; "D3: Denied; fact of injury not established"; "D4: Denied; not in performance of duty"; or "D5: Denied; causal relationship not established or disability due to injury has ceased" and 0 otherwise |
| Other status | NCM, CS | dol_rcvd_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt | An indicator variable equal to 1 if the most recent status is not listed above and has been adjudicated and 0 otherwise |
| **Compensation Benefits** | | | |
| Days Claimant Received Compensation | NCM, ACPS | dol_rcvd_dt, form_rcvd, pay_period_amount, check_date_from, check_date_thru | The number of days that the claimant received disability compensation |
| Compensation Received by Claimant | NCM, ACPS | dol_rcvd_dt, form_rcvd, pay_period_amount, check_date_from, check_date_thru | The amount of disability compensation received by the claimant |
| **Medical Benefits** | | | |
| Number of Hospital Visits | NCM, BP | dol_rcvd_dt, form_rcvd, provider_type, service_from_dt, service_thru_date | The number of hospital visits reimbursed by OWCP |
| Payments to Hospitals | NCM, BP | dol_rcvd_dt, form_rcvd, provider_type, service_from_dt, service_thru_date | The total payments to hospitals that are reimbursed by OWCP |
| Number of Physician Visits | NCM, BP | dol_rcvd_dt, form_rcvd, provider_type, service_from_dt, service_thru_date | The number of physician visits reimbursed by OWCP |
| Payments to Physicians | NCM, BP | dol_rcvd_dt, form_rcvd, provider_type, service_from_dt, service_thru_date | The total payments to physicians that are reimbursed by OWCP |

**Table B.3. Variable Construction of Case Management Indicators *(continued)***

| Variable | Source File(s) | Source Variable(s) | Variable Construction Notes |
|---|---|---|---|
| Number of Pharmacy Visits | NCM, BP | dol_rcvd_dt, form_rcvd, provider_type, service_from_dt, service_thru_date | The number of pharmacy visits reimbursed by OWCP |
| Payments to Pharmacies | NCM, BP | dol_rcvd_dt, form_rcvd, provider_type, service_from_dt, service_thru_date | The total payments to pharmacies that are reimbursed by OWCP |
| **Service Referrals** | | | |
| Disability Management System Participation | NCM, DM | dol_rcvd_dt, form_rcvd, disability_mgmt_status_cd, disability_mgmt_status_dt | An indicator variable equal to 1 if the claimant is in the DM system and 0 otherwise |
| Days of Field Nurse Involvement | NCM, DM | dol_rcvd_dt, form_rcvd, disability_mgmt_status_cd, disability_mgmt_status_dt | The number of days that the field nurse referral is active; field nurse involvement begins with either a field nurse referral, 30-day field nurse extension, 60-day field nurse extension, field nurse case closed, dual-track opened, or dual-track case closed status update; field nurse involvement ends with a field nurse case closed, dual-track case closed update, 120 days after a field nurse referral, 30 days after a 30-day field nurse extension, 60 days after a 60-day field nurse extension, or 30 days after a full-duty work outcome, or 60 days after a light-duty work outcome |
| COP Nurse Referral | NCM, CN | dol_rcvd_dt, form_rcvd, nurse_referral_dt | An indicator variable equal to 1 if a COP nurse referral was provided and 0 otherwise |
| Vocational Rehabilitation Referral | NCM, DM | dol_rcvd_dt, form_rcvd, disability_mgmt_status_cd, disability_mgmt_status_dt | An indicator variable equal to 1 if a case had a referral to a rehabilitation specialist, a referral to a rehabilitation counselor, a dual-track opened update, or a dual-track case closed status update and 0 otherwise |
| Second Opinion Examination | NCM, DM | dol_rcvd_dt, form_rcvd, disability_mgmt_status_cd, disability_mgmt_status_dt | An indicator variable equal to 1 if a second opinion was scheduled, second opinion report was received, a second opinion follow-up taken, or a continuing total disability per second opinion or referee status update occurred and 0 otherwise |

Table B.4 describes the construction of the four groups of cases. The groups are based on case management indicators that are defined over the one-year observation period.

**Table B.4. Variable Construction of Groups of Cases**

| Variable | Source File(s) | Source Variable(s) | Variable Construction Notes |
|---|---|---|---|
| Denied | NCM, CS | case_create_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt | An indicator variable equal to 1 if the most recent adjudication status is denied and 0 otherwise |
| Medical Only | NCM, CS, ACPS | case_create_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt, pay_period_amount, check_date_from, check_date_thru | An indicator variable equal to 1 if the most recent adjudication status is not denied and the claimant did not receive disability compensation and 0 otherwise |
| Some Lost Time | NCM, CS, ACPS, DM | case_create_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt, pay_period_amount, check_date_from, check_date_thru, disability_mgmt_status_cd, disability_mgmt_status_dt | An indicator variable equal to 1 if the most recent adjudication status is not denied, the claimant received disability compensation, and the claimant is not in the DM system and 0 otherwise |
| Intensive Support | NCM, CS, ACPS, DM | case_create_dt, form_rcvd, adjudication_status_cd, adjudication_status_dt, pay_period_amount, check_date_from, check_date_thru, disability_mgmt_status_cd, disability_mgmt_status_dt | An indicator variable equal to 1 if the most recent adjudication status is not denied, the claimant received disability compensation, and the claimant is in the DM system and 0 otherwise |

Table B.5 describes variables in the following groups of work outcome variables: cumulative lost-time status and point-in-time lost status. The variables are constructed for the one-quarter of a year, one-year, two-year, and three-year observation windows.

**Table B.5. Variable Construction of Work Outcomes**

| Variable | Source File(s) | Source Variable(s) | Variable Construction Notes |
|---|---|---|---|
| **Cumulative Lost Time Status** | | | |
| Any Lost Time | NCM, ACPS, DM | dol_rcvd_dt, disability_mgmt_status_cd, payment_period_amt, form_rcvd | An indicator variable equal to 1 if the claimant had any days not working and 0 if no days of not working; claimants are considered not working if they receive disability compensation or are in the DM system and not working in a full-time job |
| Days of Lost Time | NCM, ACPS, DM | dol_rcvd_dt, disability_mgmt_status_cd, payment_period_amt, form_rcvd | The number of calendar days that the claimant lost time; the claimant is considered to have lost time on a given day if he or she received disability compensation or are in the DM system but have not had a full-time work outcome update |
| **Point-in-Time Work Status** | | | |
| Loss of Wage-Earning Capacity | NCM, ACPS, DM | dol_rcvd_dt, disability_mgmt_status_cd, payment_period_amt, form_rcvd | An indicator variable equal to 1 if the claimant is receiving disability compensation or is in the DM system and not at a full-time job at the end of the observation period and 0 otherwise |

# APPENDIX C

# DEFINITION OF TERMS

This appendix defines terminology frequently used in the final report. Table C.1 lists four categories of terms and their respective definitions: injury characteristics, progress measures, benefits and service referrals, and work outcomes. Terms are listed alphabetically within each category.

**Table C.1. Definitions of Terms**

| Term | Definition |
|---|---|
| **Injury Characteristics** | |
| Occupational Illness | A condition of the body caused by systemic infection; continued or repeated stress or strain; exposure to toxins, poisons, or fumes; or other continued or repeated exposure to conditions of the work environment over more than one workday or shift. An occupational illness is distinguishable from traumatic injury, which is caused by a specific event or incident, or a series of events or incidents, within a single workday or shift, defined below. |
| Regular Work | The position at which the employee worked before the injury. |
| Traumatic Injury | A condition of the body caused by a specific event or incident, or a series of events or incidents, within a single workday or shift. Such condition must be caused by external force, including stress or strain, which is identifiable as to time and place of occurrence and member or function of the body affected. Such an injury is distinguishable from an occupational illness, defined above. |
| Work-Related Injury | Injury includes, in addition to injury by accident, a disease proximately caused by the employment and damage to or destruction of medical braces, artificial limbs, and other prosthetic devices that shall be replaced or repaired, and such time lost while such device or appliance is being replaced or repaired; except that eyeglasses and hearing aids would not be replaced, repaired, or otherwise compensated for unless the damages or destruction is incident to a personal injury requiring medical services. |
| **Initial Progress Measures** | |
| Case Open Date | The date that the case was created by the Office of Workers' Compensation Programs (OWCP). |
| Case Report Date | The date that the case was received by OWCP. |
| Claims Examiner | The main tasks of the claims examiner are to adjudicate claims, authorize benefits, and set up compensation payments; manage individual cases so that timely and proper actions are taken in each claim; and manage a caseload so that all cases are handled promptly and effectively. |
| Continuation of Pay (COP) | An employee who sustains a disabling job-related traumatic injury is entitled to continuation of regular pay for a period not to exceed 45 calendar days. To qualify for COP, the claimant must file written notice of injury and claim for COP within 30 days of the injury. COP includes the employee's full regular pay and is not considered compensation, making it not subject to taxes and other payroll deductions. The employee must make separate claim for monetary compensation if the disability exceeds 45 days or results in any permanent disability. See U.S. Department of Labor, Division of Federal Employees' Compensation (DFEC) (2012) Procedure Manual 2-807. |
| Primary Adjudication | The process of paying or denying claims submitted after comparing them with the Federal Employee's Compensation Act (FECA) benefit or coverage requirements. When a claim is received, OWCP makes a decision about services and benefits within 45 days of receipt of the form for all but the most complex cases of traumatic injuries, within 90 days for simple occupational illness cases, within 6 months for most occupational illness cases that require extensive evidentiary development, and within 10 months for very complex occupational illness cases. The primary adjudication status is this initial decision, although subsequent adjudication decisions might be required as the case progresses, changing eligibility for continued benefits. |

**Table C.1. Definition of Terms *(continued)***

| Term | Definition |
|---|---|
| **Compensation Benefits** | |
| Compensation | Employees whose injuries or illnesses led to total disability are eligible to receive compensation equal to two thirds (if no dependents) to three quarters (if one or more dependents) of his or her weekly salary. Compensation continues as long as medical evidence supports that the claimant suffers from a total disability related to the covered injury or illness. See the FECA Procedure Manual 2-0200-2. |
| **Medical Benefits** | |
| Medical Care | A claimant who meets the statutory conditions of coverage is entitled to all medical care required to cure, give relief, or reduce the degree or period of disability. No dollar maximum or time limitation is placed on medical care, which will be provided as long as the evidence indicates it is needed for the effects of the job-related injury. See the FECA Procedure Manual 2-810 and Part 3. |
| **Service Referrals** | |
| COP Nurse | A registered nurse who is assigned early in the life of a traumatic injury case and works the case telephonically rather than in person. The information obtained is used to make decisions about the best path for that particular case. The COP nurse's responsibilities include, but are not limited to, the following: contacting the claimant to obtain history of the injury, history of treatment, current work status, and physician contact information; confirming the work status with the employing agency and ascertaining whether accommodations are available, if needed; contacting the physician's office to obtain a verbal history of treatment and expected treatment plan; and providing the OWCP address for submitting reports and contact information for requesting medical authorizations should the claim be approved. |
| Disability Management (DM) | The DM system consists of the processes used by the OWCP to assist workers in recovering from a work-related injury and returning to work as soon as practicable to minimize the length of disability. |
| Disability Management Tracking System | The DM tracking system tracks the actions taken during the DM process, as well as critical return-to-work and case closure data used by the DFEC. This system measures the duration of disability, the outcomes of case management actions, the success of returning claimants to employment, and case resolutions following disability that resulted from a work injury or illness. |
| Field Nurse | A registered nurse who assists in the management of claims in a number of ways. The field nurse's contact is frequently in person with the claimant, employing agency, and medical providers. Responsibilities include, but are not limited to, the following: developing a rapport with the claimant and answering questions about what to expect from OWCP while from the outset clearly establishing the claimant's return-to-work goal; making determinations about the initial extent of the injury, treatment necessary for recovery, and return-to-work expectations (using the COP nurse's report, if available, as part of this process); attending the claimant's medical appointments to facilitate communication about return to work and to ease any authorization difficulties encountered; obtaining functional capacities, restrictions, and limitations from the physician as early as possible and providing these to the employing agency; identifying possible barriers to the claimant's return to work and developing a plan of action with the claims examiner to resolve these barriers; continual evaluation of the likelihood of return to work with the employing agency and physician with the goal of following the plan through to successful return to full-duty work and closure; communicating regularly with the medical providers, claimant, employing agency, staff nurse, and claims examiner to keep all parties informed of the status of the case to facilitate a timely, sustainable return to work; and making recommendations for vocational rehabilitation when necessary. |

**Table C.1. Definition of Terms *(continued)***

| Term | Definition |
|---|---|
| Medical Rehabilitation | Those medical and related services necessary to correct, minimize, or modify the impairment caused by a disease or injury so that the claimant can return to an adequate level of function and employment. Medical rehabilitation is distinguished from actual medical treatment to cure or relieve the effects of the injury. |
| Rehabilitation Specialist | The responsibilities of the rehabilitation specialist include, but are not limited to, the following: ensuring there are enough rehabilitation counselors to service the district office's needs; monitoring the performance of rehabilitation counselors in relation to both the contract specifications and the quality of service provided; assigning rehabilitation counselors to particular cases; reviewing rehabilitation counselors' reports for completeness and timeliness before authorizing payment of bills; communicating with claims examiners regarding the cases assigned for vocational rehabilitation services; relaying important or time-sensitive information to claims examiners so that action can be taken if needed—for example, a new issue with the claimant's medical condition that hampers the vocational rehabilitation effort; providing training and guidance to claims examiners in how to recognize when vocational services are necessary to assist the claimant with returning to work and serving as a vocational resource to the claims examiners; and providing solutions for return-to-work barriers. |
| Second-Opinion Examination | Although the claimant may choose the attending physician who provides medical treatment, OWCP may require the claimant to attend a second-opinion examination. The decision to refer a case for a second-opinion examination rests with the claims examiner, though such an examination may also be recommended by a field nurse or district medical advisor or requested by the employing agency. A fitness-for-duty examination directed by the employing agency may not be considered a second-opinion examination; however, if the findings or conclusions of such an examination differ materially from those of the attending physician, the claims examiner may consider making a second-opinion referral. A second-opinion specialist should be selected who is administratively qualified, as discussed in U.S. Department of Labor (DOL), DFEC (2012) Procedure Manual 3-500. Second-opinion examinations are generally conducted by a physician selected from a medical referral group that has contracted with OWCP to provide second-opinion medical referrals. |
| Staff Nurse | The staff nurse is a registered nurse who oversees many parts of the nurse intervention process. The staff nurse's responsibilities include, but are not limited to, the following: ensuring a sufficient number of COP nurses and field nurses to service the district office's needs; monitoring nurses' performance in relation to both the contract specifications and the quality of services provided; assigning COP nurses and field nurses in particular cases; reviewing nurses' reports for completeness and timeliness before authorizing payment of bills; communicating with the claims examiners regarding the cases assigned to field nurses; and relaying important or time-sensitive information to the claims examiners so that action can be taken if needed—for example, if expedited adjudication is needed. |
| Vocational Rehabilitation | If the claimant suffers a vocational handicap due to the injury and cannot resume usual employment, vocational rehabilitation services may be arranged to assist in training for work that the claimant can perform in the disabled condition. Rehabilitation services are usually provided by private rehabilitation counselors, who are supervised by the OWCP. When rehabilitation is under way, the OWCP may provide a monthly maintenance allowance not to exceed $200 in addition to compensation for wage loss. See FECA Procedure Manual 2-813 and Part 3. |
| **Work Outcomes** | |
| Full-Duty Work | A full-duty position is one in which the claimant is able to perform all tasks assigned to the position before the injury occurred. |
| Full-Time Work | Full-time work in a federal government agency is defined by the Office of Personnel Management to be 40 hours per week. |
| Light-Duty Work | A light-duty position is one to which the claimant has been formally reassigned that |

**Table C.1. Definition of Terms *(continued)***

| Term | Definition |
|---|---|
| | conforms to the established physical limitations of the claimant and for which the employer has already prepared a written position description such that the position constitutes federal employment. |
| Part-Time Work | Part-time work in a federal government agency is defined by the Office of Personnel Management to be 16 to 32 hours per week. |
| Return to Work | For the purposes of this analysis, *return to work* refers to the claimant returning to any work. A claimant might return to the original job, might return to part-time or light-duty work, or might work at a different government agency or a private firm. |
| Wage-Earning Capacity | An individual's wage-earning capacity is determined by actual earnings if those earnings fairly and reasonably represent the employee's wage-earning capacity. If the actual earnings do not fairly and reasonably represent wage-earning capacity or if the employee has no actual earnings, that employee's wage-earning capacity, as appears reasonable under the circumstances, is determined with due regard to the following: the nature of the injury; the degree of physical impairment; usual employment; age; qualifications for other employment; the availability of suitable employment; and other factors or circumstances that might affect wage-earning capacity in the disabled condition. |

Sources: Government Printing Office (2012); DOL (1995, 2002, 2009, n.d.(a)).

# APPENDIX D

# ANALYTIC METHODS

In this appendix, we describe how we produced the results in the report and the detailed tables in Appendix F. The appendix is organized into two sections based on the statistical methods used to answer the research questions. In Section A, we describe the statistical tests that we used to study differences in case characteristics and case management indicators. Our methods enable us to answer research question 1 by assessing differences by report year. They also enable us to answer research question 2 by assessing differences by injury severity. In Section B, we describe the multivariate regression model that we used to study work outcomes. The model enables us to study how case characteristics and case management indicators correlate with work outcomes.

## A. Studying Differences in Case Characteristics and Case Management Indicators

The purpose of the first two research questions is to identify systematic differences between cases in two dimensions. First, we want to study the differences between cases reported in 2005 and those reported in 2010. Second, we want to study the differences between cases that vary in injury severity. We assigned cases into four groups that serve as rough divisions of injury severity: (1) denied, (2) medical benefits only, (3) some lost time, and (4) disability management.

We analyzed differences in continuous and indicator (binary) variables using two-tailed t-tests of means. If the probability that the means of the underlying populations is $p \leq 0.05$, we deemed the difference statistically significant. The continuous variables in the Office of Workers' Compensation Programs (OWCP) Administrative Database include the following:

- **Case characteristics.** Age in years and county unemployment rate
- **Case management indicators.** Average compensation received by claimant, average payments to hospitals, average payments to physicians, and average payments to pharmacies

The indicator (binary) variables are:

- **Case characteristics.** Female and has dependents
- **Case management indicators.** Claimant received compensation, Disability Management (DM) participation, field nurse referral, continuation of pay (COP) nurse referral, vocational rehabilitation referral, and second opinion referral

Note that the average of an indicator variable is the percentage of cases that are in the indicated group; the difference in the averages between those with binary outcomes coded as 1 and 0 is the percentage point difference.

We also analyzed differences in variables that are coded into multiple categories (categorical variables) using a two-step process: (1) chi-squared tests followed by (2) two-tailed *t*-tests. We conducted chi-squared tests to detect differences in the distribution in cases by year reported or by the severity of the injury. If the probability that the distributions of the categorical variable differ is $p \leq 0.05$, we conducted a separate *t*-test by treating each level of the categorical variable as binary variable. If the chi-squared test was not statistically significant, we did not conduct the *t*-tests. The categorical variables include the following:

- **Case characteristics.** Age in categories of years, employing department, occupation, nature of injury, area of injury, cause of injury, and district office
- **Case management indicators.** Initial adjudication status, adjudication status at one year, days claimant received compensation, categories of the number of hospital visits, number of physician visits, categories of the number of pharmacy visits, and categories of the days of field nurse involvement

## B. Studying the Correlates of Work Outcomes

The purpose of the third research question is to determine the correlates of work outcomes. That is, we want to know how case characteristics and case management indicators are correlated with work outcomes. We focus our attention on three work outcomes, each of which is measured over different observation periods. The first outcome is whether the claimant lost time under the Federal Employee's Compensation Act (FECA) at any point during the observation period. The second outcome is the number of days that the claimant lost time under FECA during the observation period. These two outcomes are cumulative in that they are based on the entire observation period. The third outcome is whether the claimant has a loss of wage-earning capacity (LWEC) at the end of the observation period. This outcome is a point-in-time measure because it is based only on events at the end of the observation period.

We used multivariate regression to estimate the correlates of work outcomes. This approach examines the effects of each explanatory variable on work outcomes, holding constant the effects of other factors. The general form of the regression equation is

$$(1) \quad Y_{irt} = \alpha + \beta' C_{ir0} + \Gamma \mathbf{M}_{irt} + \varepsilon_{irt}$$

where

$Y_{irt}$ = work outcome at time t for claimant *i* who reported in year *r*

$C_{ir0}$ = case characteristics at time 0 for claimant *i* who reported in year *r*

$M_{irt}$= case management indicators at time *t* for claimant *i* who reported in year *r*

$\varepsilon_{irt}$ = error term for all unmeasured factors in time *t* for claimant *i* who reported in year *r*

We estimated the linear model in Equation (1) using ordinary least squares (OLS) for the three work outcomes. We used OLS for all estimations in order to present the results in a uniform way across all specifications. The standard errors of the parameter estimates were obtained using Huber-White methods that are robust to unequal error variances across sample members (heteroskedasticity) (Huber 1967; White 1980). The main parameters of interest are $\beta$, which quantifies the associations between case characteristics and work outcomes, and $\Gamma$, which quantifies the associations between case management indicators and work outcomes, after controlling for other factors in the model. We used t-statistics ($p \leq 0.05$) to determine whether the association between each variable and the work outcome was statistically significant.

We also used OLS to estimate Equation (1) with the LWEC at three years as the work outcome. These specifications were restricted to cases that had lost wage-earning capacity at one year.

It is important to note that the results of our approach provide associations only between case characteristics and case management indicators and work outcomes. They are not evidence of causal relationships because of unobserved factors that are not included in the model. For example, we estimated the correlation between hospital payments and the LWEC at one year. The model might show that greater hospital payments lead to regained wage earning capacity, but these effects could also be capturing unobserved factors (such as the severity of the injury) that could also lead to an LWEC and that are not included as explanatory variables in the model. Thus, our results have to be interpreted carefully.

# APPENDIX E

# USING OWCP ADMINISTRATIVE DATA SYSTEMS FOR RESEARCH

The administrative data systems used by the Office of Workers' Compensation Programs (OWCP) have the potential to enhance worker's compensation policies and programs. These systems contain data on when claimants return to work and in what capacity. These work outcomes are of interest because returning claimants to work is a primary objective of worker's compensation programs. The systems also have data on the program inputs that are designed to help claimants return to work. Policymakers and administrators can use these data to learn more about the operation of the OWCP. We described several potential research questions that might be useful in Chapter VI of the main report.

The purpose of this appendix is to examine ways in which the OWCP administrative data, which were designed to manage case activities, can be improved to support research efforts to help improve program operations and outcomes. On the basis of our experience using these data for this report, we believe that there are five ways that the U.S. Department of Labor (DOL) can enhance the usefulness of the data in ways that will benefit policymakers and administrators:

1. Collect data on work outcomes that take place during the continuation of pay (COP) period
2. Reduce the frequency of missing data on case characteristics
3. Reduce the frequency of missing data on case events
4. Adopt standard and precise definitions of employment and injury
5. Collect data on other factors that may affect work outcomes

We discuss each recommendation in the following sections.

## A. Collect Data on Work Outcomes that Take Place During the COP Period

Research on the first 45 days after traumatic injuries take place is likely to be of interest to a wide audience. As shown in this report, the overwhelming majority of claimants with traumatic injuries return to work at some point during the COP period. Policymakers and administrators may want to know if they can accelerate a return to work for these claimants. There is suggestive evidence that benefits and service referrals can indeed speed the return to work among those who do so relative quickly. For example, a review of the literature shows that a coordinated effort by health care providers and employers is associated with lower disability duration (Franche et al. 2005). A qualitative study also suggests that case workers can speed recovery by setting clear expectations for claimants (Belton 2011).

A limitation of the OWCP data is that OWCP does not collect data on work outcomes that take place during the COP period. The only information on work outcomes during this period is whether the claimant returned to work by the end of the first 45 days. Work outcome data are not collected because compensation benefits during the first 45 days are paid by the employing agency instead of by OWCP. As a result, only employers and claimants know whether claimants returned to work during the COP period and when.

To help fill this gap in the data, we recommend that OWCP also collect data on work outcomes that take place during the COP period. This information can be collected from either the employers or claimants. Collecting it from employers is likely to result in more accurate information if it is based on administrative data. At the same time, it might be less costly to collect it from claimants,

because OWCP interacts with them at other times, such as during the reimbursement of medical benefits. In either case, the data would provide a complete picture of work outcomes after an injury. OWCP and researchers would be able to calculate the total number of lost days, rather than only the total number of lost days under the Federal Employee's Compensation Act (FECA). They would also be able to study benefits and service referrals that are associated with a quicker return to work among the majority of claimants who return to work during this period.

## B. Reduce the Frequency of Missing Data on Case Characteristics

Policymakers and administrators are likely to make decisions that affect specific populations. For example, they might consider changes to a specific service referral for all claimants, claimants with traumatic injuries, or claimants with occupational illnesses. When they rely on research studies to inform their decisions, it is important that missing data be kept to a minimum so that the sample used in the study matches the program caseload for each population subgroup. This is critical for making informed policy decisions to ensure that study results can be generalized to the full program rather than only to those with nonmissing data (who might differ from those with missing data).

Our analysis of the OWCP administrative database shows some variation in the frequency of missing data across variables. Many case characteristics, such as age and gender, are rarely missing. However, as shown in Appendix B, some variables have higher missing data rates. Missing data are inevitable in any administrative data system, but the missing data rates for occupation, nature of injury, and cause of injury exceed 10 percent. Missing data for so many claimants imply that results based on cases without missing data might not be applicable to all claimants if the claimants with missing data are systematically different.

We recommend that OWCP revise its data collection procedures to reduce missing data on occupation, nature of injury, and cause of injury. Reducing the frequency of missing data for these items will make research studies that use this data more applicable to all claimants served by OWCP.

## C. Reduce the Frequency of Missing Data on Case Events

In order for research to be useful to policymakers and administrators, the data used in the studies must be free from error. For example, program administrators might be interested in days of field nurse intervention or loss of wage-earning capacity (LWEC) at one year. Data errors in these variables may lead to policymakers and administrators to draw erroneous conclusions and, as a result, incorrect decisions might follow. As our discussion of the variable construction process in Appendix A suggests, it is crucial that the data on events be complete. All events must be included in the OWCP administrative data systems and each event must also have a correct start and end date.

Our analysis of the OWCP administrative database suggests that there might be some missing data problems among the case events. OWCP maintains strict controls over critical data coding for compensation and medical payments. If data are missing in a case record, this usually occurs only in optional, non-critical case tracking or status data fields. For example, among traumatic injuries in the Disability Management (DM) system at one year, only 67 percent of cases issued disability compensation to the claimant. It may be that the remaining cases are all instances of OWCP putting cases into the DM system in order to assign COP nurses. These cases may not have disability compensation issued to the claimant if they return to work before receiving compensation. It is also possible that some of these cases are missing compensation records. It is possible that there are

other instances of missing events, such as those for medical benefits or return-to-work outcomes. However, it is impossible to know the extent to which this is a problem without validating the variables with external data.

We recommend that OWCP take steps to reduce the frequency of missing case event data. This could be accomplished by imposing internal data consistency checks. OWCP can also undertake research to ensure the quality of its case event data, such as through a survey of claimants. Validating the quality of the data will enhance the confidence with which potential audiences and researchers can use the data.

## D. Adopt Standard and Precise Definitions of Employment and Injury

Policymakers and administrators are likely to want to consider research using OWCP's administrative data systems in the context of other workers' compensation studies. For example, they might be interested in comparing the recovery rates of federal employees with physically taxing jobs with the published recovery rates of workers in physically taxing jobs in other industries (MacKenzie et al. 1998). They also might be interested comparing recovery rates for specific types of injuries between federal employees and employees in other industries. A consensus among research studies that use OWCP administrative data systems and those that use other data would lead to more widely applicable conclusions.

OWCP currently uses some coding schemes that are not widely used in research studies. For example, OWCP categorizes occupations using the Occupational Safety and Health Administration (OSHA) coding system. This decision makes it difficult to compare the study results with those based on more standard occupation codes, such as the Standard Occupation Classification (SOC) system. OWCP uses nonstandard codes for different natures of injury.

We recommend that OWCP use more standard classification codes for occupations and natures of injury. We suggest that it adopts the SOC system, which other agencies within DOL already widely use. Doing so would enable researchers to compare results across studies without having to allocate resources to creating a cross-walk, which introduce error into the analysis. We also suggest that OWCP classify natures of injury using the *International Classification of Diseases* (ICD) system, such as the ICD-9. Although already used in data collected on some cases, adopting this coding system for nature of injury in all cases would allow for a straightforward linkage between studies using OWCP data and medical research studies that focus on specific injuries.

## E. Collect Data on Other Factors that May Affect Work Outcomes

Policymakers and administrators are likely to be interested in other factors that affect work outcomes. One set of factors that might be of interest are demographic characteristics. Previous research indicates that educational attainment may affect work outcomes because it stands in for differences in job characteristics (MacKenzie et al. 1998). A second set of factors is the employment conditions at the time of injury. An economic analysis of the decision to return to work would account for claimant incentives. Claimants may have a greater incentive to return to work if the pre-injury salary they would earn when they return is greater than their compensation when not working (MacKenzie et al. 1998). A third set of factors that might be of interest consists of the health of the claimant. Claimants who are in worse health than others, such as those who are older, may find it more difficult to become healthy enough to return to work (Cheadle et al. 1994; Seabury et al. 2012). A fourth set of factors consists of the medical services provided by employers. Previous studies of

workers' compensation programs show that some employers have on-site clinics that claimants can use (Seabury et al. 2011). Policymakers and administrators might also be interested to learn how their benefits and service referrals interact with the medical care provided by these clinics.

Although the OWCP administrative data systems contain a rich amount of data, some areas still are not covered. The administrative data systems have information on the age, gender, and presence of dependents. However, the systems lack information on other demographic characteristics, such as educational attainment, marital status, household composition, and race. The administrative data systems also do not contain information on employment factors, such as pre-injury annual salary, usual hours, union status, and job tenure. Among health factors, the administrative data systems have information on the cause, nature, and location of the injury, but it would be helpful to have more information on the severity of the injury. Lastly, it would be helpful to know which employers have on-site clinics and the extent to which claimants use them.

We recommend that OWCP collect data on these other factors because it would facilitate a variety of research studies that are likely to be valuable to policymakers and administrators. The data from some of these factors could be collectable at low cost. For example, it might be possible to collect pre-injury salary and usual hours worked on the forms used to report traumatic injuries and occupational illnesses. However, we acknowledge that some of these data items might be more complex and costly to collect than others are. Our recommendations are not based on these costs. Instead, it is based on the usefulness of research studies that could use these data.

# APPENDIX F

# DATA TABLES

This appendix contains data tables showing the results of this study's main analyses upon which the discussion in the body of the report is based. Refer to Appendix A for additional details about the data, Appendix B for a full description of the variables included in the analyses, Appendix C for a definition of many of the terms, and Appendix D for a description of the statistical methods used.

All tables are based on the Office of Workers' Compensation Programs (OWCP) Administrative Data and use cases reported from January 1, 2005, to December 31, 2010. In addition, the following rules apply to the tables:

- All results are presented separately for traumatic injury and occupational illness cases, as discussed in the text.
- The dollar amounts are adjusted to January 2005 dollars.
- In all tables except F.1, F.6, F.13, and F.14, we conducted chi-squared tests to assess differences across columns (year reported or group of cases) in the distributions in variables with more than one category—age (categorical), employing department, occupation, nature of injury, cause of injury, district office, days to primary adjudication date (categorical), primary adjudication status, and adjudication status at one year—and only performed *t*-tests to detect differences between individual categories when the chi-squared test was statistically different ($p \leq 0.05$). All chi-squared tests showed significant differences in distributions except for the number of physician visits in Table F.5.
- All tables use an asterisk (*) to indicate that significant differences ($p \leq 0.05$, two -tailed tests) exist. However, the relevant comparison for the computation differs among the tables, as follows.
  - In Tables F.2 through F.5, the asterisk designates statistically significant differences in case characteristics and management indicators from 2005 to 2010 that are detected using two-tailed, *t*-tests.
  - In Tables F.7 through F.10, the asterisks indicate significant differences in case characteristics and management indicators between the current and preceding column (for example, the percentage female reported in the "Medical Only" column has an asterisk if it is significantly different from the percentage female in the "Denied" column, and the percentage female in the "Some Lost Time" column has an asterisk if it is significantly different from the "Medical Only" column). Statistically significant differences are detected using two-tailed, *t*-tests.
  - In Tables F.13 and F.14, the asterisks indicate that the regression coefficient is significantly different from 0 as measured by a *t*-test.
- Occupations are two-digit Standard Occupation Classification (SOC) codes, except for Postal Service Workers, which is a five-digit code. All Postal Service Workers are in Office and Administrative Support Occupations.
- The four groups used for Chapter IV analysis (Tables F.6 to F.10) are based on the adjudication status at one year after the report date, or the latest date reported before that date. See Appendix B for their construction.

- Lost time is defined as the number of days with loss of wage-earning capacity (LWEC) from the report date to a specified later date. This excludes lost time under continuation of pay (COP). Lost time is a cumulative measure that captures whether any LWEC occurred through the specified date. For example, lost time at one year is the number of days with LWEC up to one year after the report date.
- The LWEC outcome measure is a point-in-time measure that indicates whether the claimant had LWEC on the specified date. For example, LWEC at one year identifies cases with claimants who are not working (or working with wage loss) exactly one year after the report date.
- Item-specific nonresponse reduced the number of cases in some cells, except the regression tables (Tables F.13 to F.15).
- In regression analyses (Tables F.13 and F.14), the following rules apply:
  - Variables with missing values take the value of the mean of the variable. Indicator variables (1 = missing for a given variable and 0 = not missing value) were constructed for variables that contained missing data and were included in the analysis (not shown in tables). Appendix B lists the variables with missing values.
  - The comparison categories are listed in parentheses. The category with the highest frequency was selected as the comparison category.
- We use the following abbreviation and symbols in the tables:
  - COP: continuation of pay
  - LWEC: loss of wage-earning capacity
  - n.a.: not applicable

**Table F.1 Frequency and Incidence Rate of FECA Cases, by Injury Type and Employing Department**

| | 2005 | | | | | 2010 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Traumatic Injury | | Occupational Illness | | | Traumatic Injury | | Occupational Illness | |
| | Federal Employment (1,000's) | Number of FECA Cases | Incidence Rate | Number of FECA Cases | Incidence Rate | Federal Employment (1,000's) | Number of FECA Cases | Incidence Rate | Number of FECA Cases | Incidence Rate |
| **Total** | **2,708.8** | **126,823** | **46.8** | **20,811** | **7.7** | **2,841.1** | **110,691** | **39.0** | **15,258** | **5.4** |
| **Employing Department** | | | | | | | | | | |
| Department of Defense | 670.8 | 20,243 | 30.2 | 3,350 | 5.0 | 772.6 | 18,968 | 24.6 | 2,655 | 3.4 |
| Department of Homeland Security | 150.0 | 20,215 | 134.8 | 1,440 | 9.6 | 183.5 | 11,729 | 63.9 | 872 | 4.8 |
| Department of Veterans Affairs | 236.4 | 10,593 | 44.8 | 2,055 | 8.7 | 304.7 | 12,091 | 39.7 | 2,063 | 6.8 |
| United States Postal Service | 768.0 | 51,763 | 67.4 | 10,761 | 14.0 | 643.4 | 38,905 | 60.5 | 7,162 | 11.1 |
| Other Departments | 883.7 | 24,009 | 27.2 | 3,205 | 3.6 | 937.0 | 28,998 | 30.9 | 2,506 | 2.7 |

Source: www.census.gov/compendia/statab/2012/tables/12s0499.pdf.

Notes: Incidence rate is cases per 1,000. Chi-squared tests indicate that incidence rates differ significantly ($p < 0.05$) across departments for both traumatic injury and occupational illness cases in 2005 and 2010. *t*-tests indicate that incidence rates differ significantly ($p < 0.05$) from 2005 to 2010 for each department and between each pair of departments in either year.

FECA = Federal Employee's Compensation Act.

**Table F.2 Characteristics of Traumatic Injury Cases (percentages unless otherwise noted)**

| Case Characteristic | Reported in Any Year | Reported in 2005 | Reported in 2010 | Percentage Point Difference |
|---|---|---|---|---|
| **Demographic Characteristics** | | | | |
| Female | 42.3 | 41.6 | 43.5 | 1.9* |
| Age in years | | | | |
| 14 to 24 years | 5.4 | 5.0 | 5.3 | 0.3* |
| 25 to 54 years | 73.5 | 76.1 | 70.6 | -5.5* |
| 55 years or more | 21.1 | 18.9 | 24.1 | 5.2* |
| Average age in years | 43.9 | 43.6 | 44.3 | 0.7* |
| Has dependents | 55.6 | 50.5 | 57.1 | 6.6* |
| **County Unemployment Rate** | 6.5 | 5.1 | 9.7 | 4.5* |
| **Pre-Injury Employment Characteristics** | | | | |
| Employing department | | | | |
| Department of Defense | 16.7 | 16.0 | 17.1 | 1.2* |
| Department of Homeland Security | 12.5 | 15.9 | 10.6 | -5.3* |
| Department of Veterans Affairs | 9.6 | 8.4 | 10.9 | 2.6* |
| United States Postal Service | 39.4 | 40.8 | 35.1 | -5.7* |
| Other departments | 21.8 | 18.9 | 26.2 | 7.3* |
| Occupation | | | | |
| Business and financial operations | 5.8 | 2.4 | 6.9 | 4.5* |
| Health care practitioners and technical | 9.3 | 16.2 | 7.0 | -9.2* |
| Installation, maintenance, and repair | 7.4 | 7.5 | 7.1 | -0.4* |
| Office and administrative support | 40.8 | 41.8 | 38.3 | -3.6* |
| Postal Service workers | 33.4 | 34.6 | 30.4 | -4.2* |
| Protective service | 11.6 | 9.4 | 13.7 | 4.3* |
| Other occupations | 25.1 | 22.6 | 27.0 | 4.4* |
| **Injury Characteristics** | | | | |
| Nature of injury | | | | |
| Back | 16.6 | 19.3 | 14.7 | -4.6* |
| Pain | 8.8 | 4.3 | 13.3 | 9.0* |
| Sprain | 28.5 | 29.4 | 26.1 | -3.3* |
| Wound | 26.2 | 28.8 | 25.0 | -3.7* |
| Other natures | 19.9 | 18.3 | 20.9 | 2.6* |
| Area of injury | | | | |
| Arm | 8.0 | 7.9 | 7.9 | 0.0 |
| External | 19.0 | 21.6 | 17.0 | -4.6* |
| Hand | 4.7 | 5.0 | 4.2 | -0.8* |
| Head, external | 7.9 | 7.2 | 8.2 | 1.0* |
| Head, internal | 4.4 | 5.2 | 4.0 | -1.2* |
| Knee | 11.0 | 10.4 | 11.4 | 0.9* |
| Leg | 7.9 | 4.8 | 9.8 | 5.0* |
| Shoulder | 7.0 | 7.0 | 6.9 | -0.2 |
| Other areas | 30.3 | 30.8 | 30.7 | -0.1 |
| Cause of injury | | | | |
| Animal or insect (including dog bite) | 8.9 | 8.2 | 10.0 | 1.7* |
| Fall | 27.1 | 24.6 | 29.7 | 5.1* |
| Handling mail | 12.8 | 16.1 | 10.2 | -5.9* |
| Handling manual equipment | 12.0 | 12.8 | 9.9 | -3.0* |
| Slip | 11.2 | 11.2 | 11.8 | 0.6* |
| Striking against material equipment | 6.5 | 6.4 | 6.3 | -0.1 |
| Other causes | 21.5 | 20.6 | 22.2 | 1.6* |
| **District Office** | | | | |
| Boston | 4.3 | 4.6 | 4.1 | -0.6* |
| Chicago | 6.6 | 6.7 | 6.4 | -0.3* |
| Cleveland | 8.4 | 8.3 | 9.0 | 0.6* |
| Dallas | 10.1 | 10.1 | 9.7 | -0.4* |
| Denver | 5.5 | 5.3 | 5.4 | 0.1 |
| Jacksonville | 17.3 | 17.2 | 17.5 | 0.3* |
| Kansas City | 4.6 | 4.3 | 5.0 | 0.6* |
| New York City | 9.2 | 9.6 | 8.6 | -1.1* |
| Philadelphia | 6.9 | 7.0 | 6.8 | -0.2 |
| San Francisco | 14.6 | 14.3 | 15.0 | 0.8* |
| Seattle | 5.7 | 5.5 | 5.8 | 0.3* |
| Washington, DC | 6.9 | 7.1 | 6.9 | -0.2* |
| **Number of Cases** | 693,491 | 126,864 | 110,739 | n.a. |

**Table F.3. Characteristics of Occupational Illness Cases (percentages unless otherwise noted)**

| Case Characteristic | Reported in Any Year | Reported in 2005 | Reported in 2010 | Percentage Point Difference |
|---|---|---|---|---|
| **Demographic Characteristics** | | | | |
| Female | 51.1 | 50.4 | 52.3 | 1.8* |
| Age in years | | | | |
| 14 to 24 years | 1.6 | 1.6 | 1.3 | -0.3* |
| 25 to 54 years | 67.5 | 70.9 | 64.0 | -7.0* |
| 55 years or more | 30.9 | 27.5 | 34.7 | 7.3* |
| Average age in years | 47.9 | 47.2 | 48.5 | 1.4* |
| Has dependents | 61.4 | 55.7 | 61.9 | 6.2* |
| **County Unemployment Rate** | 6.3 | 5.1 | 9.6 | 4.5* |
| **Pre-Injury Employment Characteristics** | | | | |
| Employing department | | | | |
| Department of Defense | 16.4 | 16.1 | 17.5 | 1.4* |
| Department of Homeland Security | 6.2 | 7.1 | 5.8 | -1.3* |
| Department of Veterans Affairs | 11.1 | 9.9 | 13.5 | 3.6* |
| United States Postal Service | 50.4 | 51.5 | 46.8 | -4.7* |
| Other departments | 15.8 | 15.4 | 16.4 | 1.0* |
| Occupation | | | | |
| Business and financial operations | 5.4 | 2.8 | 6.3 | 3.5* |
| Health care practitioners and technical | 7.9 | 10.2 | 7.8 | -2.4* |
| Installation, maintenance, and repair | 6.5 | 6.3 | 6.5 | 0.1 |
| Office and administrative support | 54.7 | 56.6 | 51.9 | -4.6* |
| Postal Service workers | 45.3 | 46.8 | 42.0 | -4.8* |
| Protective service | 3.7 | 2.9 | 4.4 | 1.5* |
| Other occupations | 21.7 | 21.2 | 23.1 | 1.9* |
| **Injury Characteristics** | | | | |
| Nature of injury | | | | |
| Back | 6.5 | 7.1 | 6.0 | -1.1* |
| Pain | 10.3 | 5.9 | 14.7 | 8.8* |
| Sprain | 0.2 | 0.1 | 0.2 | 0.1* |
| Wound | 0.1 | 0.0 | 0.0 | 0.0 |
| Other natures | 83.0 | 86.9 | 79.1 | -7.8* |
| Area of injury | | | | |
| Arm | 13.6 | 13.2 | 13.0 | -0.2 |
| External | 10.7 | 11.3 | 10.6 | -0.7 |
| Hand | 10.6 | 12.2 | 9.2 | -3.0* |
| Head, external | 3.3 | 3.3 | 3.2 | -0.2 |
| Head, internal | 18.0 | 18.6 | 17.0 | -1.7* |
| Knee | 5.1 | 4.9 | 5.7 | 0.7* |
| Leg | 1.9 | 1.4 | 2.3 | 0.9* |
| Shoulder | 10.1 | 9.7 | 9.9 | 0.1 |
| Other areas | 26.8 | 25.3 | 29.3 | 4.0* |
| Cause of injury | | | | |
| Animal or insect (including dog bite) | 1.0 | 0.9 | 1.4 | 0.5* |
| Fall | 0.9 | 1.0 | 0.9 | -0.2 |
| Handling mail | 32.3 | 32.3 | 32.2 | -0.2 |
| Handling manual equipment | 31.5 | 28.6 | 30.0 | 1.5 |
| Slip | 1.5 | 2.1 | 1.0 | -1.1* |
| Striking against material equipment | 0.5 | 0.7 | 0.4 | -0.3* |
| Other causes | 32.2 | 34.4 | 34.1 | -0.3 |
| **District Office** | | | | |
| Boston | 4.2 | 5.0 | 4.0 | -1.0* |
| Chicago | 8.6 | 8.1 | 9.4 | 1.3* |
| Cleveland | 7.9 | 8.0 | 8.0 | 0.1 |
| Dallas | 10.7 | 9.7 | 10.8 | 1.1* |
| Denver | 5.3 | 5.4 | 5.2 | -0.1 |
| Jacksonville | 16.7 | 16.6 | 16.2 | -0.4 |
| Kansas City | 5.1 | 4.6 | 5.6 | 0.9* |
| New York City | 5.9 | 6.3 | 5.8 | -0.5* |
| Philadelphia | 5.4 | 5.2 | 5.2 | 0.1 |
| San Francisco | 17.8 | 19.1 | 16.4 | -2.8* |
| Seattle | 7.9 | 7.5 | 8.5 | 1.0* |
| Washington, DC | 4.5 | 4.5 | 4.9 | 0.4 |
| **Number of Cases** | 107,300 | 20,878 | 15,290 | n.a. |

**Table F.4. Case Management Indicators for Traumatic Injury Cases (percentages unless otherwise noted)**

| Case Management Indicator (at one year) | Reported in Any Year | Reported in 2005 | Reported in 2010 | Percentage Point Difference |
|---|---|---|---|---|
| **Initial Progress Measures** | | | | |
| Days to primary adjudication date | | | | |
| 0 days (that is, same day) | 77.0 | 78.4 | 76.1 | -2.3* |
| 1 to 29 days | 6.4 | 6.2 | 6.8 | 0.6* |
| 30 to 59 days | 15.5 | 12.9 | 16.3 | 3.4* |
| 60 days or more | 1.1 | 2.5 | 0.8 | -1.7* |
| Primary adjudication status | | | | |
| Accepted for COP | 35.1 | 33.0 | 36.4 | 3.3* |
| Accepted for medical benefits only | 55.9 | 58.6 | 54.7 | -3.9* |
| Denied | 8.9 | 8.3 | 8.9 | 0.6* |
| Other adjudication | 0.0 | 0.0 | 0.0 | -0.0* |
| Not yet adjudicated | 0.0 | 0.0 | 0.0 | 0.0 |
| Adjudication status at one year | | | | |
| Accepted for COP | 34.3 | 32.4 | 35.5 | 3.1* |
| Accepted for medical benefits only | 49.4 | 52.6 | 46.3 | -6.3* |
| Denied | 9.7 | 9.1 | 10.1 | 1.0* |
| Other adjudication | 6.5 | 5.8 | 8.0 | 2.2* |
| Not yet adjudicated | 0.0 | 0.0 | 0.0 | 0.0 |
| **Compensation Benefits** | | | | |
| Days claimant received compensation | | | | |
| 0 days (that is, no compensation) | 92.8 | 93.5 | 91.7 | -1.8* |
| 1 to 59 days | 2.9 | 2.6 | 3.1 | 0.6* |
| 60 to 119 days | 1.4 | 1.3 | 1.6 | 0.4* |
| 120 days or more | 2.9 | 2.6 | 3.6 | 0.9* |
| Average compensation received by claimant | $660 | $597 | $806 | $209* |
| **Medical Benefits** | | | | |
| Number of hospital visits | | | | |
| 0 visits | 71.6 | 72.9 | 71.1 | -1.8* |
| 1 or 2 visits | 8.9 | 8.0 | 8.9 | 0.9* |
| 3 or 4 visits | 7.2 | 6.9 | 7.0 | 0.1* |
| 5 visits or more | 12.3 | 12.2 | 13.1 | 0.9* |
| Average payments to hospitals | $653 | $615 | $717 | $101* |
| Number of physician visits | | | | |
| 0 visits | 37.5 | 38.7 | 37.3 | -1.5* |
| 1 or 2 visits | 16.5 | 16.5 | 16.7 | 0.2* |
| 3 or 4 visits | 10.1 | 10.1 | 10.0 | -0.1* |
| 5 visits or more | 35.9 | 34.6 | 36.0 | 1.4* |
| Average payments to physicians | $1,307 | $1,128 | $1,439 | $311* |
| Number of pharmacy visits | | | | |
| 0 visits | 85.6 | 88.1 | 84.5 | -3.6* |
| 1 or 2 visits | 7.2 | 6.0 | 7.6 | 1.6* |
| 3 or 4 visits | 2.9 | 2.3 | 3.1 | 0.9* |
| 5 visits or more | 4.3 | 3.6 | 4.8 | 1.2* |
| Average payments to pharmacies | $45 | $37 | $49 | $12* |
| **Service Referrals** | | | | |
| Disability management system participation | 7.8 | 9.7 | 8.6 | -1.1* |
| Days of field nurse involvement | | | | |
| 0 days | 94.4 | 95.5 | 93.0 | -2.4* |
| 1 to 120 days | 3.1 | 2.4 | 3.8 | 1.3* |
| 121 to 180 days | 1.6 | 1.4 | 2.0 | 0.6* |
| 181 days or more | 0.9 | 0.7 | 1.2 | 0.5* |
| COP nurse referral | 9.3 | 8.2 | 11.2 | 3.0* |
| Vocational rehabilitation referral | 0.3 | 0.3 | 0.3 | 0.0 |
| Second-opinion examination | 1.0 | 0.7 | 1.2 | 0.5* |
| **Number of Cases** | 693,491 | 126,864 | 110,739 | n.a. |

**Table F.5. Case Management Indicators for Occupational Illness Cases (percentages unless otherwise noted)**

| Case Management Indicator (at one year) | Reported in Any Year | Reported in 2005 | Reported in 2010 | Percentage Point Difference |
|---|---|---|---|---|
| **Initial Progress Measures** | | | | |
| Days to primary adjudication date | | | | |
| 0 days (that is, same day) | 0.3 | 0.3 | 0.3 | -0.0 |
| 1 to 29 days | 12.5 | 13.0 | 12.2 | -0.9* |
| 30 to 59 days | 30.6 | 28.9 | 31.1 | 2.2* |
| 60 days or more | 56.2 | 57.2 | 56.2 | -1.0* |
| Primary adjudication status | | | | |
| Accepted for medical benefits only | 49.0 | 50.9 | 47.4 | -3.5* |
| Denied | 50.5 | 48.3 | 52.3 | 4.0* |
| Other adjudication | 0.1 | 0.2 | 0.0 | -0.2* |
| Not yet adjudicated | 0.4 | 0.6 | 0.3 | -0.3* |
| Adjudication status at one year | | | | |
| Accepted for medical benefits only | 34.8 | 37.8 | 31.7 | -6.0* |
| Denied | 47.0 | 45.0 | 49.0 | 3.9* |
| Other adjudication | 17.8 | 16.6 | 19.0 | 2.4* |
| Not yet adjudicated | 0.4 | 0.6 | 0.3 | -0.3* |
| **Compensation Benefits** | | | | |
| Days claimant received compensation | | | | |
| 0 days (that is, no compensation) | 84.6 | 85.2 | 84.3 | -0.9* |
| 1 to 59 days | 5.6 | 5.6 | 4.9 | -0.6* |
| 60 to 119 days | 3.4 | 3.3 | 3.2 | -0.1 |
| 120 days or more | 6.4 | 6.0 | 7.6 | 1.6* |
| Average compensation received by claimant | $1,461 | $1,350 | $1,767 | $418* |
| **Medical Benefits** | | | | |
| Number of hospital visits | | | | |
| 0 visits | 86.3 | 85.9 | 86.8 | 0.9* |
| 1 or 2 visits | 3.0 | 3.3 | 2.6 | -0.7* |
| 3 or 4 visits | 1.4 | 1.5 | 1.2 | -0.3* |
| 5 visits or more | 9.4 | 9.3 | 9.3 | 0.0* |
| Average payments to hospitals | $798 | $658 | $849 | $192* |
| Number of physician visits | | | | |
| 0 visits | 55.6 | 55.5 | 55.9 | 0.4* |
| 1 or 2 visits | 4.8 | 5.1 | 4.9 | -0.2* |
| 3 or 4 visits | 5.0 | 5.6 | 5.7 | 0.1* |
| 5 visits or more | 34.6 | 33.8 | 33.5 | -0.3* |
| Average payments to physicians | $1,820 | $1,477 | $2,028 | $551* |
| Number of pharmacy visits | | | | |
| 0 visits | 88.7 | 91.1 | 86.4 | -4.7* |
| 1 or 2 visits | 4.2 | 3.6 | 4.9 | 1.3* |
| 3 or 4 visits | 2.2 | 1.6 | 2.8 | 1.2* |
| 5 visits or more | 4.9 | 3.7 | 6.0 | 2.2* |
| Average payments to pharmacies | $57 | $41 | $78 | $37* |
| **Service Referrals** | | | | |
| Disability management system participation | 11.4 | 10.3 | 12.5 | 2.1* |
| Days of field nurse involvement | | | | |
| 0 days | 91.0 | 92.1 | 90.0 | -2.2* |
| 1 to 120 days | 4.7 | 4.2 | 4.7 | 0.5* |
| 121 to 180 days | 2.9 | 2.5 | 3.5 | 0.9* |
| 181 days or more | 1.4 | 1.1 | 1.8 | 0.7* |
| Vocational rehabilitation referral | 0.5 | 0.5 | 0.6 | 0.1 |
| Second-opinion examination | 1.3 | 1.0 | 1.7 | 0.7* |
| **Number of Cases** | 107,300 | 20,878 | 15,290 | n.a. |

**Table F.6. Number of Cases, by Group at One Year**

| Year Reported | All Cases | Denied | Medical Only | Some Lost Time | Intensive Support |
|---|---|---|---|---|---|
| **Traumatic Injury** | | | | | |
| Reported in 2005 | 126,864 | 11,599 | 107,178 | 2,365 | 5,722 |
| Reported in 2006 | 116,636 | 11,507 | 97,404 | 2,191 | 5,534 |
| Reported in 2007 | 113,639 | 11,248 | 94,334 | 2,147 | 5,910 |
| Reported in 2008 | 114,570 | 11,084 | 95,497 | 2,145 | 5,844 |
| Reported in 2009 | 111,043 | 10,823 | 91,814 | 2,284 | 6,122 |
| Reported in 2010 | 110,739 | 11,214 | 90,431 | 2,245 | 6,849 |
| *Reported in any year* | 693,491 | 67,475 | 576,658 | 13,377 | 35,981 |
| Percentage of all cases (in any year) | 100.0 | 9.7 | 83.2 | 1.9 | 5.2 |
| | | | | | |
| **Occupational Illness** | | | | | |
| Reported in 2005 | 20,878 | 9,399 | 8,490 | 1,168 | 1,821 |
| Reported in 2006 | 19,352 | 9,108 | 7,364 | 1,055 | 1,825 |
| Reported in 2007 | 18,644 | 8,792 | 7,028 | 1,012 | 1,812 |
| Reported in 2008 | 16,818 | 7,806 | 6,453 | 906 | 1,653 |
| Reported in 2009 | 16,318 | 7,869 | 5,962 | 859 | 1,628 |
| Reported in 2010 | 15,290 | 7,485 | 5,435 | 697 | 1,673 |
| *Reported in any year* | 107,300 | 50,459 | 40,732 | 5,697 | 10,412 |
| Percentage of all cases (in any year) | 100.0 | 47.0 | 38.0 | 5.3 | 9.7 |

**Table F.7. Characteristics of Traumatic Injury Cases, by Group (percentages unless otherwise noted)**

| Case Characteristic | Denied | Medical Only | Some Lost Time | Intensive Support |
|---|---|---|---|---|
| **Demographic Characteristics** | | | | |
| Female | 45.4 | 41.4* | 53.4* | 46.4* |
| Age in years | | | | |
| 14 to 24 years | 5.0 | 5.8* | 2.0* | 2.0 |
| 25 to 54 years | 72.8 | 73.5* | 75.9* | 73.1* |
| 55 years or more | 22.2 | 20.7* | 22.1* | 24.9* |
| Average age in years | 44.6 | 43.6* | 46.0* | 46.4* |
| Has dependents | 54.1 | 55.6* | 60.0* | 56.9* |
| **County Unemployment Rate** | 6.5 | 6.5 | 6.6* | 6.7* |
| **Pre-Injury Employment Characteristics** | | | | |
| Employing department | | | | |
| Department of Defense | 15.2 | 17.2* | 14.5* | 12.7* |
| Department of Homeland Security | 12.1 | 12.6* | 11.1* | 12.0* |
| Department of Veterans Affairs | 13.4 | 9.4* | 8.1* | 7.5* |
| United States Postal Service | 37.3 | 38.5* | 52.8* | 51.9 |
| Other departments | 22.0 | 22.4* | 13.4* | 15.8* |
| Occupation | | | | |
| Business and financial operations | 7.1 | 5.7* | 7.7* | 5.3* |
| Health care practitioners and technical | 10.8 | 9.2* | 9.1 | 8.3* |
| Installation, maintenance, and repair | 5.7 | 7.7* | 5.9* | 6.2 |
| Office and administrative support | 41.8 | 39.8* | 52.3* | 50.0* |
| Postal Service workers | 32.6 | 32.5 | 44.9* | 44.3 |
| Protective service | 10.1 | 12.0* | 5.8* | 10.2* |
| Other occupations | 24.4 | 25.6* | 19.3* | 20.1 |
| **Injury Characteristics** | | | | |
| Nature of injury | | | | |
| Back | 21.3 | 15.9* | 20.7* | 17.5* |
| Pain | 10.7 | 8.3* | 9.9* | 12.5* |
| Sprain | 24.6 | 28.0* | 40.7* | 39.6* |
| Wound | 13.2 | 28.9* | 12.5* | 10.7* |
| Other natures | 30.2 | 18.8* | 16.2* | 19.8* |
| Area of injury | | | | |
| Arm | 6.0 | 8.2* | 7.7* | 7.8 |
| External | 25.0 | 18.3* | 22.4* | 18.4* |
| Hand | 2.9 | 5.1* | 2.7* | 1.9* |
| Head, external | 8.4 | 8.0* | 5.5* | 4.7* |
| Head, internal | 9.3 | 4.0* | 1.5* | 1.6 |
| Knee | 9.8 | 10.4* | 16.2* | 19.6* |
| Leg | 5.0 | 8.3* | 6.2* | 7.0* |
| Shoulder | 6.9 | 6.3* | 12.1* | 16.5* |
| Other areas | 26.7 | 31.3* | 25.6* | 22.3* |
| Cause of injury | | | | |
| Animal or insect (including dog bite) | 3.9 | 9.9* | 1.9* | 1.6* |
| Fall | 23.5 | 26.8* | 32.2* | 35.6* |
| Handling mail | 18.0 | 11.9* | 19.2* | 17.7* |
| Handling manual equipment | 15.2 | 11.6* | 14.6* | 12.4* |
| Slip | 9.5 | 11.1* | 13.7* | 14.7* |
| Striking against material equipment | 5.0 | 6.9* | 4.2* | 3.2* |
| Other causes | 24.8 | 21.8* | 14.2* | 14.8 |
| **District Office** | | | | |
| Boston | 4.2 | 4.3 | 5.1* | 5.2 |
| Chicago | 4.4 | 6.8* | 7.7* | 6.0* |
| Cleveland | 8.8 | 8.5* | 9.9* | 5.9* |
| Dallas | 9.4 | 10.1* | 14.9* | 10.8* |
| Denver | 4.5 | 5.8* | 3.4* | 4.4* |
| Jacksonville | 21.0 | 16.8* | 19.4* | 16.8* |
| Kansas City | 4.6 | 4.7 | 2.1* | 4.3* |
| New York City | 10.9 | 8.7* | 7.3* | 14.2* |
| Philadelphia | 7.1 | 6.8* | 6.5 | 7.9* |
| San Francisco | 12.6 | 14.8* | 9.9* | 15.7* |
| Seattle | 4.9 | 5.9* | 5.7 | 4.4* |
| Washington, DC | 7.5 | 6.9* | 8.0* | 4.5* |
| **Number of Cases** | 67,475 | 576,658 | 13,377 | 35,981 |

**Table F.8. Characteristics of Occupational Illness Cases, by Group (percentages unless otherwise noted)**

| Case Characteristic | Denied | Medical Only | Some Lost Time | Intensive Support |
|---|---|---|---|---|
| **Demographic Characteristics** | | | | |
| Female | 53.3 | 44.1* | 62.6* | 61.1 |
| Age in years | | | | |
| 14 to 24 years | 1.8 | 1.8 | 0.5* | 0.3* |
| 25 to 54 years | 70.2 | 62.1* | 74.1* | 71.9* |
| 55 years or more | 28.1 | 36.1* | 25.3* | 27.8* |
| Average age in years | 47.4 | 48.1* | 48.1 | 49.0* |
| Has dependents | 59.6 | 62.2* | 66.1* | 64.5* |
| **County Unemployment Rate** | 6.4 | 6.1* | 6.3* | 6.6* |
| **Pre-Injury Employment Characteristics** | | | | |
| Employing department | | | | |
| Department of Defense | 13.5 | 23.0* | 10.7* | 7.8* |
| Department of Homeland Security | 8.0 | 5.1* | 3.7* | 3.4 |
| Department of Veterans Affairs | 17.1 | 6.4* | 4.9* | 3.8* |
| United States Postal Service | 46.7 | 45.1* | 71.7* | 77.4* |
| Other departments | 14.6 | 20.4* | 8.9* | 7.6* |
| Occupation | | | | |
| Business and financial operations | 6.3 | 4.7* | 5.0 | 3.9* |
| Healthcare practitioners and technical | 10.9 | 5.6* | 4.0* | 3.8 |
| Installation, maintenance, and repair | 4.8 | 10.2* | 4.0* | 2.8* |
| Office and administrative support | 52.4 | 49.3* | 73.0* | 77.0* |
| Postal Service workers | 40.6 | 41.8* | 65.6* | 71.2* |
| Protective service | 4.2 | 4.1 | 1.1* | 1.1 |
| Other occupations | 21.4 | 26.1* | 13.0* | 11.6* |
| **Injury Characteristics** | | | | |
| Nature of injury | | | | |
| Back | 7.7 | 5.1* | 7.9* | 5.1* |
| Pain | 10.4 | 9.7* | 11.0* | 11.3 |
| Sprain | 0.1 | 0.3* | 0.2 | 0.3 |
| Wound | 0.0 | 0.1* | 0.0* | 0.0 |
| Other natures | 81.8 | 84.9* | 80.9* | 83.2* |
| Area of injury | | | | |
| Arm | 12.0 | 14.1* | 16.7* | 17.5 |
| External | 13.0 | 8.2* | 11.2* | 8.5* |
| Hand | 8.7 | 10.4* | 14.4* | 18.2* |
| Head, external | 3.7 | 2.9* | 3.3 | 2.2* |
| Head, internal | 18.5 | 23.0* | 6.0* | 2.1* |
| Knee | 5.3 | 4.3* | 5.8* | 7.3* |
| Leg | 2.0 | 1.8* | 2.3* | 1.8* |
| Shoulder | 7.9 | 9.9* | 13.3* | 19.8* |
| Other areas | 28.8 | 25.4* | 26.9* | 22.6* |
| Cause of injury | | | | |
| Animal or insect (including dog bite) | 1.2 | 1.2 | 0.3* | 0.2 |
| Fall | 1.3 | 0.7* | 0.5 | 0.5 |
| Handling mail | 29.9 | 30.2 | 41.9* | 43.6 |
| Handling manual equipment | 32.3 | 28.3* | 35.7* | 37.8 |
| Slip | 1.6 | 1.5 | 1.2 | 1.8 |
| Striking against material equipment | 0.6 | 0.4* | 0.2 | 0.3 |
| Other causes | 33.1 | 37.7* | 20.2* | 15.8* |
| **District Office** | | | | |
| Boston | 4.3 | 3.8* | 4.7* | 4.9 |
| Chicago | 6.3 | 10.0* | 13.0* | 11.3* |
| Cleveland | 8.3 | 7.1* | 10.9* | 7.3* |
| Dallas | 10.1 | 11.5* | 12.8* | 9.2* |
| Denver | 5.3 | 5.9* | 3.5* | 4.0 |
| Jacksonville | 18.6 | 15.2* | 15.6 | 14.4* |
| Kansas City | 5.6 | 4.6* | 3.0* | 5.6* |
| New York City | 6.5 | 4.9* | 4.9 | 7.2* |
| Philadelphia | 6.6 | 4.2* | 4.2 | 5.1* |
| San Francisco | 17.0 | 18.3* | 14.7* | 21.7* |
| Seattle | 6.5 | 9.9* | 8.1* | 7.2 |
| Washington, DC | 4.9 | 4.6 | 4.9 | 1.9* |
| **Number of Cases** | 50,459 | 40,732 | 5,697 | 10,412 |

**Table F.9. Case Management Indicators for Traumatic Injury Cases, by Group (percentages unless otherwise noted)**

| Case Management Indicator (at one year) | Denied | Medical Only | Some Lost Time | Intensive Support |
|---|---|---|---|---|
| **Initial Progress Measures** | | | | |
| Days to primary adjudication date | | | | |
| 0 days (that is, same day) | 17.1 | 84.2* | 73.0* | 74.6* |
| 1 to 29 days | 1.0 | 6.7* | 9.4* | 9.8 |
| 30 to 59 days | 75.7 | 8.5* | 16.6* | 14.7* |
| 60 days or more | 6.2 | 0.5* | 1.0* | 0.8* |
| Primary adjudication status | | | | |
| Accepted for COP | 7.2 | 37.0* | 45.3* | 54.1* |
| Accepted for medical benefits only | 11.1 | 62.0* | 51.3* | 44.1* |
| Denied | 81.7 | 0.9 | 3.3 | 1.7 |
| Other adjudication | 0.0 | 0.0* | 0.0* | 0.1* |
| Not yet adjudicated | 0.0 | 0.0* | 0.0 | 0.0* |
| Adjudication status at one year | | | | |
| Accepted for COP | 0.0 | 41.0* | 8.6* | 2.1* |
| Accepted for medical benefits only | 0.0 | 58.0* | 10.9* | 18.5* |
| Denied | 100.0 | 0.0 | 0.0 | 0.0 |
| Other adjudication | 0.0 | 1.0* | 80.5* | 79.4* |
| Not yet adjudicated | 0.0 | 0.0* | 0.0 | 0.0* |
| **Compensation Benefits** | | | | |
| Days claimant received compensation | | | | |
| 0 days (that is, no compensation) | 99.1 | 100.0* | 0.0 | 0.0 |
| 1 to 59 days | 0.3 | 0.0* | 68.1* | 29.7* |
| 60 to 119 days | 0.2 | 0.0* | 15.7* | 21.4* |
| 120 days or more | 0.5 | 0.0* | 16.2* | 48.9* |
| Average compensation received by claimant | $104 | $0* | $2,977* | $11,414* |
| **Medical Benefits** | | | | |
| Number of hospital visits | | | | |
| 0 visits | 95.1 | 72.2* | 44.0* | 27.5* |
| 1 or 2 visits | 1.8 | 9.6* | 11.0* | 10.0 |
| 3 or 4 visits | 1.1 | 7.8* | 8.3* | 7.4* |
| 5 visits or more | 2.1 | 10.3* | 36.7* | 55.1* |
| Average payments to hospitals | $80 | $327* | $2,100* | $6,422* |
| Number of physician visits | | | | |
| 0 visits | 81.6 | 35.5* | 3.2* | 0.3* |
| 1 or 2 visits | 8.2 | 18.8* | 2.8* | 0.5 |
| 3 or 4 visits | 2.3 | 11.8* | 2.7* | 0.5* |
| 5 visits or more | 7.9 | 33.9* | 91.3* | 98.8* |
| Average payments to physicians | $156 | $760* | $5,044* | $10,839* |
| Number of pharmacy visits | | | | |
| 0 visits | 97.6 | 87.4* | 57.0* | 44.1* |
| 1 or 2 visits | 1.2 | 7.4* | 13.3* | 13.4 |
| 3 or 4 visits | 0.6 | 2.6* | 8.4* | 9.5* |
| 5 visits or more | 0.6 | 2.6* | 21.3* | 33.0* |
| Average payments to pharmacies | $6 | $24* | $207* | $393* |
| **Service Referrals** | | | | |
| Disability management system participation | 1.0 | 3.1* | 0.0* | 100.0 |
| Days of field nurse involvement | | | | |
| 0 days | 99.7 | 98.5* | 100.0* | 15.8* |
| 1 to 120 days | 0.2 | 1.1* | 0.0* | 42.3* |
| 121 to 180 days | 0.1 | 0.3* | 0.0* | 26.8* |
| 181 days or more | 0.0 | 0.1* | 0.0* | 15.1* |
| COP nurse referral | 6.2 | 8.6* | 12.9* | 24.3* |
| Vocational rehabilitation referral | 0.0 | 0.0 | 0.0 | 4.8* |
| Second-opinion examination | 0.3 | 0.1* | 0.0* | 17.2* |
| **Number of Cases** | 67,475 | 576,658 | 13,377 | 35,981 |

**Table F.10. Case Management Indicators for Occupational Illness Cases, by Group (percentages unless otherwise noted)**

| Case Management Indicator (at one year) | Denied | Medical Only | Some Lost Time | Intensive Support |
|---|---|---|---|---|
| **Initial Progress Measures** | | | | |
| Days to primary adjudication date | | | | |
| 0 days (that is, same day) | 0.0 | 0.4* | 0.3 | 0.8* |
| 1 to 29 days | 0.6 | 22.0* | 22.0 | 27.6* |
| 30 to 59 days | 35.4 | 24.0* | 31.2* | 33.5* |
| 60 days or more | 64.0 | 52.6* | 46.3* | 38.0* |
| Primary adjudication status | | | | |
| Accepted for medical benefits only | 0.8 | 92.1* | 87.7* | 92.2* |
| Denied | 99.1 | 6.8 | 11.8 | 7.5 |
| Other adjudication | 0.1 | 0.1* | 0.3* | 0.2* |
| Not yet adjudicated | 0.0 | 1.0* | 0.2* | 0.0* |
| Adjudication status at one year | | | | |
| Accepted for medical benefits only | 0.0 | 84.4* | 20.9* | 16.9* |
| Denied | 100.0 | 0.0 | 0.0 | 0.0 |
| Other adjudication | 0.0 | 14.7* | 78.9* | 83.1* |
| Not yet adjudicated | 0.0 | 1.0* | 0.2* | 0.0* |
| **Compensation Benefits** | | | | |
| Days claimant received compensation | | | | |
| 0 days (that is, no compensation) | 99.1 | 100.0* | 0.0 | 0.0 |
| 1 to 59 days | 0.2 | 0.0* | 58.3* | 24.9* |
| 60 to 119 days | 0.1 | 0.0* | 18.6* | 24.6* |
| 120 days or more | 0.6 | 0.0* | 23.1* | 50.4* |
| Average compensation received by claimant | $143 | $0* | $4,372* | $11,974* |
| **Medical Benefits** | | | | |
| Number of hospital visits | | | | |
| 0 visits | 99.6 | 84.9* | 64.3* | 39.1* |
| 1 or 2 visits | 0.1 | 4.2* | 7.5* | 9.1* |
| 3 or 4 visits | 0.1 | 1.9* | 3.4* | 4.6* |
| 5 visits or more | 0.2 | 9.0* | 24.7* | 47.1* |
| Average payments to hospitals | $11 | $463* | $1,605* | $5,480* |
| Number of physician visits | | | | |
| 0 visits | 94.9 | 27.2* | 10.3* | 1.1* |
| 1 or 2 visits | 1.6 | 9.5* | 6.0* | 0.9* |
| 3 or 4 visits | 1.3 | 10.6* | 5.5* | 1.1* |
| 5 visits or more | 2.3 | 52.7* | 78.2* | 97.0* |
| Average payments to physicians | $62 | $1,931* | $3,898* | $8,772* |
| Number of pharmacy visits | | | | |
| 0 visits | 99.6 | 87.6* | 68.7* | 51.3* |
| 1 or 2 visits | 0.1 | 5.5* | 11.7* | 15.3* |
| 3 or 4 visits | 0.1 | 2.6* | 6.2* | 8.7* |
| 5 visits or more | 0.2 | 4.4* | 13.5* | 24.7* |
| Average payments to pharmacies | $1 | $60* | $158* | $262* |
| **Service Referrals** | | | | |
| Disability management system participation | 0.2 | 4.2* | 0.0* | 100.0 |
| Days of field nurse involvement | | | | |
| 0 days | 99.9 | 97.3* | 100.0* | 18.1* |
| 1 to 120 days | 0.0 | 1.5* | 0.0* | 42.1* |
| 121 to 180 days | 0.0 | 0.8* | 0.0* | 26.9* |
| 181 days or more | 0.0 | 0.4* | 0.0* | 12.9* |
| Vocational rehabilitation referral | 0.0 | 0.1* | 0.0* | 5.0* |
| Second-opinion examination | 0.1 | 0.3* | 0.0* | 12.1* |
| **Number of Cases** | 50,459 | 40,732 | 5,697 | 10,412 |

**Table F.11. Work Outcomes at One Year, by Report Date (percentages unless otherwise noted)**

| Work Outcome | Traumatic Injury | | | Occupational Illness | | |
|---|---|---|---|---|---|---|
| | Reported in 2005 | Reported in 2010 | Difference | Reported in 2005 | Reported in 2010 | Difference |
| **Cumulative Lost-Time Status** | | | | | | |
| Any lost time | 11.2 | 10.4 | -0.8* | 16.4 | 17.2 | 0.8* |
| Days of lost time | | | | | | |
| 0 days (that is, no lost time) | 88.8 | 89.6 | 0.8* | 83.6 | 82.8 | -0.8* |
| 1 to 29 days | 1.4 | 1.8 | 0.5* | 2.6 | 2.2 | -0.4* |
| 30 to 89 days | 1.8 | 2.5 | 0.6* | 4.0 | 4.0 | -0.1 |
| 90 to 179 days | 1.4 | 1.8 | 0.4* | 3.5 | 3.7 | 0.2 |
| 180 Days or More | 6.5 | 4.2 | -2.3* | 6.3 | 7.4 | 1.1* |
| Average days of lost time | 23.1 | 16.2 | -6.8* | 26.0 | 29.2 | 3.2* |
| **Point-in-Time Work Status** | | | | | | |
| No loss of wage-earning capacity | 93.7 | 96.2 | 2.5* | 93.6 | 92.6 | -1.0* |
| Loss of wage-earning capacity | 6.3 | 3.8 | -2.5* | 6.4 | 7.4 | 1.0* |
| **Number of Cases** | 126,864 | 110,739 | n.a. | 20,878 | 15,290 | n.a. |

**Table F.12. Work Outcomes, by Time After Case Report Date (percentages unless otherwise noted)**

| Work Outcome | Traumatic Injury | | | | Occupational Illness | | | |
|---|---|---|---|---|---|---|---|---|
| | At One Quarter | At One Year | At Two Years | At Three Years | At One Quarter | At One Year | At Two Years | At Three Years |
| **Cumulative Lost-Time Status** | | | | | | | | |
| Any lost time | 7.5 | 9.4 | 9.8 | 9.9 | 10.4 | 16.9 | 18.6 | 19.3 |
| Days of lost time | | | | | | | | |
| 0 days (that is, no lost time) | 92.5 | 90.6 | 90.2 | 90.1 | 89.6 | 83.1 | 81.4 | 80.7 |
| 1 to 29 days | 2.0 | 1.6 | 1.6 | 1.5 | 3.2 | 2.7 | 2.6 | 2.5 |
| 30 to 89 days | 5.5 | 2.1 | 2.1 | 2.0 | 4.1 | 4.3 | 4.3 | 4.2 |
| 90 to 179 days | 0.0 | 1.5 | 1.5 | 1.5 | 3.1 | 3.6 | 3.5 | 3.6 |
| 180 days or more | 0.0 | 4.1 | 4.7 | 4.9 | 0.0 | 6.3 | 8.2 | 8.9 |
| Average days of lost time | 2.8 | 15.7 | 29.1 | 41.8 | 5.9 | 26.2 | 47.7 | 67.7 |
| **Point-in-Time Work Status** | | | | | | | | |
| No loss of wage-earning capacity | 94.3 | 96.2 | 96.5 | 96.6 | 92.7 | 93.9 | 94.6 | 94.7 |
| Loss of wage-earning capacity | 5.7 | 3.8 | 3.5 | 3.4 | 7.3 | 6.1 | 5.4 | 5.3 |
| **Number of Cases** | 471,093 | 471,093 | 471,093 | 471,093 | 74,956 | 74,956 | 74,956 | 74,956 |

Note: This table shows results only for cases reported from 2005 to 2008.

**Table F.13. Work Outcomes at One Year: Associations with Case Characteristics (unstandardized regression coefficients unless otherwise noted)**

| Case Characteristic | Traumatic Injury | | | Occupational Illness | | |
|---|---|---|---|---|---|---|
| | Any Lost Time | Days of Lost Time | LWEC | Any Lost Time | Days of Lost Time | LWEC |
| **Demographic Characteristics** | | | | | | |
| Female | 0.009* | 2.458* | 0.007* | 0.038* | 8.174* | 0.019* |
| Age in years (25 to 54 years) | | | | | | |
| 14 to 24 years | -0.031* | -4.016* | -0.009* | -0.063* | -9.616* | -0.027* |
| 55 years or more | 0.012* | 1.882* | 0.005* | -0.004 | -1.195 | 0.001 |
| Has Dependents | 0.012* | 2.341* | 0.006* | 0.023* | 3.269* | 0.006* |
| **County Unemployment Rate** | 0.001 | 0.124 | 0.000 | 0.003* | 0.500* | 0.001 |
| **Pre-Injury Employment Characteristics** | | | | | | |
| Employing department (U.S. Postal Service) | | | | | | |
| Department of Defense | -0.035* | -5.087* | -0.009* | -0.082* | -13.970* | -0.032* |
| Department of Homeland Security | -0.026* | -2.705* | -0.004* | -0.101* | -15.013* | -0.036* |
| Department of Veterans Affairs | -0.054* | -8.133* | -0.017* | -0.162* | -25.732* | -0.061* |
| Other departments | -0.039* | -4.762* | -0.008* | -0.099* | -14.479* | -0.032* |
| Occupation (office and administrative support) | | | | | | |
| Business and financial operations | 0.005 | -0.117 | -0.001 | 0.009 | 2.294 | 0.008 |
| Health care practitioners and technical | 0.021* | 5.054* | 0.016* | -0.007 | 0.249 | 0.004 |
| Installation, maintenance, and repair | 0.011* | 1.105* | 0.002 | 0.004 | 0.069 | -0.002 |
| Protective service | 0.001 | -0.618 | -0.003* | -0.022* | -3.056* | -0.004 |
| Other occupations | 0.007* | 0.844* | 0.002 | -0.001 | -0.277 | 0.003 |
| **Injury Characteristics** | | | | | | |
| Nature of injury (sprain) | | | | | | |
| Back | 0.005* | 3.980* | 0.011* | -0.073 | -10.240 | 0.000 |
| Pain | 0.001 | 1.586* | 0.005* | -0.092* | -17.451* | -0.023 |
| Wound | -0.038* | -5.285* | -0.013* | -0.147* | -25.172* | -0.027 |
| Other natures | 0.027* | 4.421* | 0.008* | -0.071 | -14.988 | -0.014 |
| Area of injury (external) | | | | | | |
| Arm | 0.003 | -1.453* | -0.007* | 0.052* | 1.811 | -0.000 |
| Hand | -0.029* | -6.020* | -0.017* | 0.098* | 5.358* | 0.011* |
| Head, external | -0.021* | -2.893* | -0.007* | -0.000 | 1.745 | 0.005 |
| Head, internal | -0.058* | -8.231* | -0.018* | -0.082* | -14.356* | -0.035* |
| Knee | 0.063* | 5.175* | 0.004* | 0.045* | 5.072* | 0.012* |
| Leg | 0.000 | -0.650 | -0.004* | 0.034* | 6.827* | 0.022* |
| Shoulder | 0.087* | 11.210* | 0.017* | 0.099* | 15.137* | 0.024* |
| Other areas | -0.014* | -3.269* | -0.010* | 0.003 | -2.006 | -0.006 |
| Cause of injury (fall) | | | | | | |
| Animal or insect (including dog bite) | -0.083* | -12.979* | -0.028* | 0.014 | 3.099 | 0.006 |
| Handling mail | -0.010* | -2.064* | -0.003* | 0.076* | 7.648 | 0.010 |
| Handling manual equipment | -0.021* | -4.663* | -0.010* | 0.077* | 7.683 | 0.012 |
| Slip | -0.012* | -3.123* | -0.008* | 0.061* | 9.409 | 0.003 |
| Striking against material equipment | -0.042* | -7.198* | -0.016* | 0.033 | 6.611 | 0.013 |
| Other causes | -0.029* | -4.887* | -0.010* | 0.053* | 6.128 | 0.013 |
| **District Office** (Jacksonville) | | | | | | |
| Boston | 0.001 | 0.444 | -0.001 | 0.005 | -0.414 | 0.002 |
| Chicago | -0.014* | -1.428* | -0.003* | 0.006 | -0.271 | -0.003 |
| Cleveland | -0.025* | -4.616* | -0.011* | -0.014* | -6.064* | -0.016* |
| Dallas | 0.011* | 2.752* | 0.006* | -0.004 | 0.127 | 0.005 |
| Denver | 0.021* | 6.223* | 0.013* | 0.016* | 9.043* | 0.017* |
| Kansas City | 0.024* | 4.459* | 0.007* | 0.029* | 4.695* | -0.002 |
| New York City | 0.053* | 15.376* | 0.046* | 0.048* | 20.459* | 0.067* |
| Philadelphia | 0.021* | 5.633* | 0.014* | -0.004 | 0.994 | 0.007 |
| San Francisco | 0.019* | 5.059* | 0.014* | -0.002 | 2.593* | 0.011* |
| Seattle | -0.007* | 0.311 | 0.002 | -0.009 | -2.717* | -0.010* |
| Washington, DC | -0.005* | 0.338 | 0.002 | -0.022* | -1.836 | -0.001 |
| **Year Reported** (2005) | | | | | | |
| 2006 | -0.030* | -10.490* | -0.033* | 0.004 | 0.290 | -0.002 |
| 2007 | -0.022* | -9.231* | -0.031* | 0.010* | 1.603* | -0.002 |
| 2008 | -0.024* | -10.124* | -0.033* | 0.007 | 0.982 | 0.001 |
| **Mean Dependent Variable** | 0.09 | 15.67 | 0.04 | 0.17 | 26.25 | 0.06 |
| **R-Squared** | 0.039 | 0.027 | 0.019 | 0.076 | 0.045 | 0.024 |
| **Number of Cases** | 471,093 | 471,093 | 471,093 | 74,956 | 74,956 | 74,956 |

Note: The sample is limited to cases reported from 2005 to 2008.

**Table F.14. LWEC for Long-Term Disability Cases: Associations with Case Characteristics and Case Management Indicators (unstandardized regression coefficients unless otherwise noted)**

| Case Characteristic or Case Management Indicator (at one year) | Traumatic Injury | | Occupational Illness | |
|---|---|---|---|---|
| | At Two Years | At Three Years | At Two Years | At Three Years |
| **Demographic Characteristics** | | | | |
| Female | -0.019* | -0.026* | -0.017 | -0.032* |
| Age in years (25 to 54 years) | | | | |
| 14 to 24 years | 0.056* | 0.069* | 0.099 | 0.030 |
| 55 years or more | 0.031* | 0.037* | 0.062* | 0.055* |
| Has dependents | -0.003 | -0.008 | 0.001 | 0.006 |
| **County Unemployment Rate** | -0.006* | -0.005* | -0.005 | -0.003 |
| **Pre-Injury Employment Characteristics** | | | | |
| Employing department (U.S. Postal Service) | | | | |
| Department of Defense | 0.016 | 0.019 | -0.009 | -0.001 |
| Department of Homeland Security | 0.047* | 0.048* | 0.080* | 0.073 |
| Department of Veterans Affairs | 0.023 | 0.028* | 0.076* | 0.064 |
| Other departments | 0.038* | 0.042* | 0.047 | 0.069* |
| Occupation (office and administrative support) | | | | |
| Business and financial operations | -0.011 | -0.008 | -0.015 | -0.018 |
| Health care practitioners and technical | 0.000 | 0.004 | -0.048 | -0.022 |
| Installation, maintenance, and repair | 0.012 | 0.010 | -0.041 | -0.043 |
| Protective service | 0.004 | 0.010 | 0.009 | -0.046 |
| Other occupations | 0.004 | 0.009 | 0.030 | 0.013 |
| **Injury Characteristics** | | | | |
| Nature of injury (sprain) | | | | |
| Back | 0.012 | 0.004 | 0.136 | 0.126 |
| Pain | 0.001 | -0.002 | 0.156 | 0.119 |
| Wound | 0.021* | 0.027* | 0.362* | 0.388* |
| Other natures | 0.023* | 0.019 | 0.153 | 0.114 |
| Area of injury (external) | | | | |
| Arm | -0.051* | -0.052* | -0.165* | -0.124* |
| Hand | -0.023 | -0.023 | -0.171* | -0.141* |
| Head, external | 0.001 | -0.008 | 0.047 | 0.050 |
| Head, internal | 0.003 | -0.003 | 0.009 | 0.045 |
| Knee | -0.041* | -0.046* | -0.136* | -0.127* |
| Leg | -0.009 | -0.015 | -0.155* | -0.135* |
| Shoulder | -0.104* | -0.109* | -0.158* | -0.130* |
| Other areas | -0.019* | -0.024* | -0.108* | -0.075* |
| Cause of injury (fall) | | | | |
| Animal or insect (including dog bite) | 0.029 | 0.030 | 0.091 | 0.095 |
| Handling mail | 0.001 | 0.006 | -0.016 | -0.028 |
| Handling manual equipment | -0.006 | -0.002 | -0.032 | -0.056 |
| Slip | 0.004 | 0.004 | 0.143 | 0.101 |
| Striking against material equipment | 0.015 | 0.018 | -0.226 | -0.312 |
| Other causes | -0.009 | -0.007 | -0.028 | -0.065 |
| **District Office** (Jacksonville) | | | | |
| Boston | -0.088* | -0.089* | 0.001 | -0.005 |
| Chicago | -0.053* | -0.046* | -0.036 | -0.054 |
| Cleveland | -0.040* | -0.051* | -0.076* | -0.122* |
| Dallas | -0.049* | -0.050* | -0.119* | -0.155* |
| Denver | 0.027* | 0.032* | 0.095* | 0.106* |
| Kansas City | 0.042* | 0.052* | 0.106* | 0.084* |
| New York City | 0.053* | 0.055* | 0.120* | 0.122* |
| Philadelphia | -0.003 | -0.008 | 0.049 | 0.020 |
| San Francisco | -0.032* | -0.024* | 0.015 | -0.008 |
| Seattle | -0.021 | -0.019 | -0.093* | -0.110* |
| Washington, DC | -0.027 | -0.035* | -0.024 | -0.066 |
| **Year Reported** (2005) | | | | |
| 2006 | -0.078* | -0.080* | -0.035 | -0.025 |
| 2007 | -0.077* | -0.087* | -0.003 | 0.018 |
| 2008 | -0.053* | -0.053* | 0.024 | 0.050* |

**Table F.14. LWEC for Long-Term Disability Cases… *(continued)***

| Case Characteristic or Case Management Indicator (at one year) | Traumatic Injury | | Occupational Illness | |
|---|---|---|---|---|
| | At Two Years | At Three Years | At Two Years | At Three Years |
| **Initial Progress Measures** | | | | |
| Days to primary adjudication date (same day) | | | | |
| 1 to 29 days | 0.049* | 0.047* | 0.016 | -0.051 |
| 30 to 59 days | 0.038* | 0.039* | -0.007 | -0.079 |
| 60 days or more | 0.025 | 0.025 | -0.039 | -0.103 |
| **Medical Benefits** | | | | |
| Hospital payments ($000) | 0.000* | 0.000 | 0.000 | 0.000 |
| Physician payments ($000) | -0.003* | -0.003* | -0.004* | -0.005* |
| Pharmacy payments ($000) | 0.008* | 0.010* | 0.020* | 0.023* |
| **Service Referrals** | | | | |
| Field nurse referral | -0.064* | -0.059* | 0.017 | 0.028 |
| COP nurse referral | 0.116* | 0.125* | n.a. | n.a. |
| Second-opinion examination | 0.060* | 0.061* | 0.110* | 0.119* |
| Vocational rehabilitation referral | 0.067* | 0.070* | 0.116* | 0.108* |
| **Mean Dependent Variable** | 0.83 | 0.80 | 0.70 | 0.66 |
| **R-Squared** | 0.111 | 0.115 | 0.093 | 0.099 |
| **Number of Cases** | 18,072 | 18,072 | 4,600 | 4,600 |

Note: The sample is limited to long-term disability cases (that is, those with LWEC at one year after the report date). The unit change in county unemployment rate is one percentage point.

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