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EXAMINING THE PROGRESSION OF DISABILITY BENEFITS AMONG
EMPLOYEES IN THE UNITED STATES

A dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy at Virginia Commonwealth University

by

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ABSTRACT

EXAMINING THE PROGRESSION OF DISABILITY BENEFITS AMONG EMPLOYEES IN THE UNITED STATES

By: Carolyn E. Danczyk - Hawley

A dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy at Virginia Commonwealth University

Virginia Commonwealth University, 2006

Major Director: Christine Reid, Ph.D.

Professor, Department of Rehabilitation Counseling

The following project is a compilation of three separate articles all utilizing a database extracted from the UNUM/Provident Life Insurance Company, including all consecutive short-term disability (STD) claims filed with UNUM from January 1, 1994 to December 31, 1996 from claimants who were also insured for long-term disability (LTD) by UNUM. The resulting sample includes 77,297 claims.

The results of these studies are part of a larger investigation that documented the Progression of Disability Benefits (PODB) phenomenon. PODB refers to the migration of workers with work-limiting disabilities through a system of economic benefits resulting in their placement onto Social Security Disability Insurance (SSDI). Claimant

and employer demographics were found to influence the PODB. The following articles study three unique ways in which the PODB measure can be informative.

The first of the articles tracks the experience of 400 individuals with neurological impairments through the PODB, and compares them with a general disability population on key demographic characteristics. In general, it is found that persons with neurological conditions have greater progression on to advanced disability levels than other types of disabilities. Individual claimants are also younger and male.

The second article explores the relationship of integrated disability management (IDM) practices with PODB. It proposes that while the efficacy of IDM programs has been measured by the bottom line, that PODB can be used as an additional tool to assess effectiveness of DM programs. It finds that employers with higher levels of IDM activity will experience a reduced PODB rating.

The third and final article examines one industry, Healthcare. It studies how demographics can be used to predict claimant industry as well as PODB performance. Findings reveal that men were more likely to move on to advanced disability benefits while workers in the Healthcare industry were less likely to move on to advanced statuses than employees in other industries. Furthermore, disability type is the greatest predictor of PODB, followed by age for all but one category in which employment sector was the next predictor of PODB. This finding leads to questions regarding how the workplace may contribute to disability and the PODB.

CHAPTER I

INTRODUCTION

Progression of Disability Benefits Introduction

With escalating healthcare, workers compensation and other disability – related costs, employers in the early 1980s were seeking ways to protect themselves from rising expenses that had increased significantly from the previous decade (McMahon, Danczyk-Hawley, Reid, Habeck, Flynn, Owens & Kregel, 2000). Private sector stratagems ensued that aimed to reduce these costs while maintaining a healthy and productive workforce.

One such effort to control expenses has lead to the development of Disability Management (DM) programs. The principle behind DM is that employers do not have to be passive payers, but can implement policies and procedures to control the cost of their employees' disabilities (Salkever, Shinogle, & Purushothaman, 2000). The goal of DM is to reduce costs by developing proactive methods that reduce the development of disability, or intervene quickly following its onset, through the use of coordinated rehabilitation services that aim for job maintenance (Akabas, Gates, & Galvin, 1992). Proponents of DM stressed that in order to realize the full potential of these initiatives, coordinated management of all disability-related programs was desirable (McMahon, et al., 2000). These included worker compensation (WC), short (STD) and long-term

disability (LTD), and medical care programs (Schwartz, 1984). In the absence of an integrated approach to health and disability, employers would otherwise experience cost shifting among their internal benefit programs.

Employers implementing DM programs have experienced reduced frequency and duration of disability among employees (McLellan, Pransky, & Shaw, 2001), resulting in estimates of a 15-20% reduction in overall disability costs (Staying @ Work, 1999). However, such savings have not been found in regards to disability claims of long duration where employers have failed to return employees to work. For these cases, the process has typically been one of cost-shifting to the public sector to recoup dollars lost in compensated benefits (Hunt, Habeck, Owens, & Vandergoot, 1996; Schwartz, 1984). Cost shifting is the process whereby insurers recover a portion of the claimant's benefit costs collected under LTD by actively assisting individuals in obtaining Social Security Disability Insurance (SSDI) benefits (Frazer, McMahon, & Danczyk-Hawley, 2005). The result of this cost-shifting is a growth in the public disability program enrollment and costs.

The Government Accounting Office (GAO) has documented a significant increase in the number of public disability beneficiaries every year since 1982 (1998). A Disability Policy Panel convened by the National Academy of Social Insurance attributes growth in the SSDI program to a number of additional trends (Social Security Policy Panel, 1996). First, economic recessions fuel an increase in applications for benefits among older workers who lost their jobs because of corporate downsizing and other

organizational changes. Yelin (1998) hypothesizes that many of the applications approved during cyclical economic downturns would not be approved during good times.

Second, the eligible population is larger. Baby boomers are getting older and entering ages in which the risk of disability rises, and many more women in the baby-boom generation have sufficient work experience to be insured for SSDI benefits. Third, cost-containment measures in the privately insured STD, LTD, and WC benefit systems direct workers to the SSDI program in cases where claimants meet the initial SSDI eligibility criteria. The effect of such measures is to shift some or all of the benefit payments and medical costs from private disability insurance companies to the federal government (Fisher & Upp, 1998).

Fourth, as an outgrowth of the emphasis in managed care programs on early identification and management of disease, disabling conditions are being recognized and diagnosed earlier in the course of the disease and at the primary level of health care. An example is the increased recognition of serious mental disorders in the mood and affect categories by primary care providers (Wagner, Danczyk-Hawley, and Reid 2000; Goldman 1998). Finally, a programmatic lack of an effective return-to-work focus has produced a lasting reliance among many beneficiaries (Ross, 1996).

With respect to this final point, in recent years only one in 500 SSDI beneficiaries has departed the disability rolls to return to work. While the GAO estimates that nearly \$3 billion could be saved in lifetime cash benefits for every 1% of working-age beneficiaries who return-to-work (McMahon, et al., 2000).

The costs of disability and the growing rate of participation in disability benefit programs (particularly among younger, working-age applicants) are now widely recognized as threatening factors to both public and private sector budgets (Reno, Mashow, & Gradison, 1997). These trends have brought renewed attention to the need to reduce unnecessary work disability, provide better and more timely interventions, and design benefit policies to create stronger incentives to control costs and achieve employment outcomes whenever possible (Reno et al., 1997; Rupp & Stapleton, 1998).

In the past two decades, it has become clear that the action and inaction of employers, insurers and providers have important implications for the public disability program. There is a definite need to study interventions that promote work retention, and strategies that inhibit the transfer of individuals with enduring work disabilities to the Social Security (SS) system.

Progression of Disability Benefits

The following compilation of articles documents the migration of workers who develop work limiting disabilities through a system of economic disability benefits resulting in their ultimate placement into the Social Security disability system. This phenomenon is labeled the Progression of Disability Benefits (PODB) (McMahon, et al., 2000). Specifically, this migration involves a “progression” from STD to LTD to SSDI income.

Disability Benefits Programs

First, an explanation of the individual disability program features is central to all issues regarding the progression of benefits and claimant eligibility for benefits.

Employer benefit plans progressively narrow the definition of disability as an employee moves from the more liberally applied sick leave to STD, LTD, and ultimately to the more restrictive SSDI (Wagner, Danczyk- Hawley, & Mulholland, 2002).

The definition of STD--that is, the temporary inability to perform the essential functions of one's own occupation--is used by insurers and employers alike and is generally consistent among benefit plans. Essentially, STD is a temporary income replacement benefit for which employers can insure or self-insure. The benefit usually has a brief waiting period (1 to 7 days) that is coordinated with sick leave, and it typically replaces between 60 percent and 80 percent of an employee's wages. Although the duration of disability payments varies among employers, it tends to range from 3 to 12 months (WBGH, 2000).

LTD plans, designed for cases of extended illness or injury, typically define disability in more restrictive terms--that is, the inability to perform the essential functions of one's own or any other occupation. Although that definition is generally consistent among insurers and employers, the actual number of days considered "extended illness" varies greatly among plans (Wagner, et al., 2002). LTD is an income replacement plan, usually with a waiting period of 90 to 365 days, that is often coordinated with STD. Typically, long-term benefit payments range between 50 percent and 67 percent of an employee's wages and can continue until the employee retires or reaches a specified age,

provided the disability is continuous (WBGH, 2000). Generally, LTD benefits are reduced dollar for dollar by SSDI, hence the term "offset."

SSDI has the narrowest definition of disability--that is, the inability to engage in any substantial gainful activity by reason of a medically determinable physical or mental impairment expected to last for not less than 12 months or to result in death. Eligibility for SSDI benefit payments also depends on how much a worker earns (up to the maximum covered by Social Security) and for how long. The period of employment required to qualify for SSDI benefits varies with the age at which disability occurred. Once an employee receiving LTD benefits qualifies for SSDI payments, it is common practice to reduce the LTD so that combined payments do not exceed 100 percent of the employee's wages at the time the disability began (Wagner, et al., 2002; Mulholland, Barocas, and Smorynski, forthcoming).

The PODB phenomenon (how claimants move through disability benefits systems), was documented by McMahon, et al. (2000), through a study of an UNUM/Provident database. The database was extracted from the UNUM/Provident Life Insurance Company, and includes all consecutive short-term disability (STD) claims filed with UNUM from January 1, 1994 to December 31, 1996 from claimants who were also insured for long-term disability (LTD) by UNUM. The resulting sample included 77,297 consecutive claims for STD. A statistically significant and systematic movement of claimants from STD to LTD to SSDI was found. More specifically, approximately one in nine claimants with STD moved on to collect LTD, and one in three claimants on LTD advanced further to SSDI. As documented by McMahon, et al. (2000), the progression

became even more systematic when additional features about the claimant (i.e., age, gender, region of residence, and disability type) and employer (standard industry code) were known.

Three papers are used to chart the PO DB from varied perspectives. In the first paper, a particular category of disabling conditions, neurological conditions, is selected to understand the dynamics of the PO DB within this population. The second paper explores the use of employer DM techniques and evaluates how these correlate with the PO DB experience within these workplaces. The final article highlights one specific industry, healthcare, and assesses if employer industry, and the PO DB experience, can be predicted when claimant demographic and employer variables are known.

Paper I: A Barrier to Independence for Persons with Neurological Impairments

For this article a specific disability category, neurological conditions, is studied and the following questions are assessed: Can the movement of claimants with neurological impairments from STD to LTD to SSDI be described? How does PO DB for workers who incur neurological impairments differ from workers with disabilities in general? Finally, How do workers with various types of neurological impairments differ from each other in regards to age, gender, region, and employer industry?

This study tracks the experience of 400 individuals with neurological impairments through the PO DB, and compares them with a general disability population on key demographic characteristics. The authors submit that PO DB is a clear impediment to

independent living and suggest hopeful interventions that may interrupt PO DB and by extension, maximize independent living for persons with neurological impairments.

Paper II: Progression of Disability Benefits as a Measure of Disability Management

Program Effectiveness: Implications for Future Research

In this article the concept of DM is furthered to include integrated disability management (IDM). IDM takes the practices of DM and expands them within the workplace to include the coordination and linking of all employer health care, benefit, and case management components to complement each other. In doing so, the employer can avoid the conflicting philosophies, redundant administrative costs, and internal turf issues that can result from administration of different benefits in separate corporate departments (Flynn, 2000).

This study explores the relationship of IDM with PO DB. It is proposed that while the efficacy of IDM programs has been measured by the bottom line, that PO DB can be used as an additional tool to assess effectiveness of DM programs (not just for the private sector organization, but for the resulting savings accrued in the public Social Security Administration (SSA) system as well). Specifically, 42 employers were contacted to complete a survey of their integrated disability benefit programs. These results were then compared with their PO DB experience. The authors propose employers demonstrating higher levels of IDM activity will experience a reduced PO DB rating.

Paper III: Employees' Progression through Disability Benefits within the Healthcare Industry

The purpose of this study is to analyze the database on PODB measures to describe and evaluate the effects of predictor variables on differentiating the Healthcare industry from other industries, as well as determining the PODB phenomenon. The Healthcare industry is currently the largest employer in the U.S., providing 13 million jobs annually (BLS, 2005). Additionally, it is an employment sector that is projected to grow more than any other industry over the next decade. Yet, as demand grows for workers in the health care industry, employers are faced with a limited supply of workers to fill those positions. Thus, maintaining a healthy workforce is crucial to provide for the increasing demand for health services.

The specific objectives of this study are to:

1. Explore the differences between the Healthcare industry and all other industries by claimant demographics (age, gender, and disability type) and PODB (STD, LTD, and SSDI) experiences. Furthermore, to assess whether these demographics and the PODB can predict employer industry (Healthcare vs. Other)?
2. Predict the PODB experiences of claimants employed within different sectors of the Healthcare Industry (general care, sub acute, acute, medical/dental laboratories, home-healthcare, and health & allied services) when additional demographics (age, gender, disability type) are known.

The three articles demonstrate different ways in which the PODB can be used to evaluate and measure workplace disability. The overarching aim is to use this procedure to develop interventions that promote return to work, and avert the PODB process.

CHAPTER II

Progression of Disability Benefits:

A Barrier to Independence for Persons with Neurological Impairments

By

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This research was conducted primarily under the auspices of the Virginia Traumatic Brain Injury Model System Program at Virginia Commonwealth University (VCU). Funding was provided by the National Institute on Disability and Rehabilitation Research (grant # H133A980026). Appreciation is extended to UNUM/Provident Corporation, the Washington Business Group on Health, and the Rehabilitation and Research Center on Workplace Supports at VCU for providing the necessary data and technical assistance to execute this study. For additional information contact Carolyn Danczyk-Hawley at VCU/RHAB, PO Box 980330, Richmond, Virginia 23298-0330, USA

Abstract

Progression of Disability Benefits (PODB) is defined as the migration of workers with disabilities through a system of economic benefits resulting in their ultimate reliance upon Social Security Disability Income (SSDI). This study tracts the experience of 400 individuals with neurological impairments through the PODB, and compares them with a general disability population on key demographic characteristics. The authors submit that PODB is a clear impediment to independent living and suggest hopeful interventions that may interrupt PODB and by extension, maximize independent living for persons with neurological impairments.

PROGRESSION OF DISABILITY BENEFITS:

A Barrier to Independence for Persons with Neurological Impairments

It is a generally accepted principle in rehabilitation that one's prospects for independent living are linked inextricably to both vocational status and independence from economic disability support systems. Extensive research has been conducted regarding the employment of persons with neurological impairments, and how employment potential can be both predicted and maximized (Fraser and Clemmons, 1999). Regarding economic support, however, far less is known about how persons with neurological impairments migrate through various systems of income replacement.

Recently, a new construct has been developed that can shed additional light on matters of independence and disability. The Progression of Disability Benefits (PODB) is defined as the migration of workers with work-limiting disabilities through a system of economic benefits resulting in their ultimate reliance upon Social Security Disability Income (SSDI) (McMahon, Danczyk-Hawley, Reid, Flynn, Habeck, Kregel, and Owens, 2000). One study demonstrated that when return to work services were not successful following an impairment, the final "intervention of choice" was assisting the individual to acquire SSDI (Hunt, Habeck, Owens, & Vandergoot, 1996). The net effect was a shifting of both costs and responsibility from the private to the public sector. In recent years, enrollment in SSDI has been escalating, while the departure rate from SSDI for return to work has remained less than one percent (Habeck & Hunt, 1999). Thus, nearly all persons with disabilities that enroll in SSDI remain forever dependent on the system. In

brief, any reduction in PODB would be desirable in terms of furthering the independent living objectives of community inclusion that often are associated with employment.

The purpose of this study is to expand upon the McMahon, et al. (2000) study, by examining how the PODB phenomenon relates to neurological impairments.

Specifically, the research questions are:

- How can we describe the movement of claimants with neurological impairments from short-term disability (STD) to long-term disability (LTD) to SSDI?
- How does PODB for workers who incur neurological impairments differ from workers with disabilities in general?
- How do workers with various types of neurological impairments differ from each other in regards to age, gender, region, and employer industry?

Description of the Database

The database was extracted from the UNUM/Provident Life Insurance Company, a large disability insurer, in April, 1999. Every case of STD filed with UNUM/Provident during calendar years 1994, 1995, and 1996 (known as the filing period) was included in the original data set. This group included 115,457 claims, from which the following were removed: 1,187 due to death; 35,437 due to pregnancy; 771 due to missing ICD-9 codes; 726 because LTD claims were related to different STD claims prior to the filing period and 258. With these deletions, the final population available for the study included 77,297 claims.

Characteristics and Limitations of the Data Set

The master data set was compared to national trends during the reporting period and the following differences were noted in the original research (McMahon, et al., 2000):

1. The UNUM/Provident data set contained proportionately more females, more services workers, more workers 25-44 years old and more workers from the Northeastern U.S.
2. The Unum/Provident sample had fewer workers in government, transportation and wholesale/retail trades; fewer workers age 15-24; and fewer workers from the Western U.S.
3. In order to minimize variations in the data attributable to claims handling, the sample includes only claimants' insured for both STD and LTD by UNUM/Provident.
4. Most claimants in this sample work for larger employers (i.e., 500 or more workers) that offered integrated benefit programs. These employers are likely to have higher levels of accommodation and Disability Management activity than would be expected of employers in general.
5. No work-related injuries were included in this study as those injuries are addressed through a different disability benefit system (i.e., worker compensation).
6. Variations in reporting practices and interpretation of disease definitions by medical providers inevitably will result in qualitative and quantitative biases that, in turn, affect the representativeness and completeness of the data set.

7. Impairment severity is not known.
8. At least 99.2% of all claims had sufficient opportunity to “mature” (i.e., reach SSDI status if they were going to do so).

For these reasons, the data itself and the trends indicated by the data are interpreted with caution.

Documenting and Describing the Progression of Disability Benefits

The General Disability PODB

The migration of all claimants in the population from STD (N=77,297) to LTD (N=8,880) to SSDI (N=3013) status was documented and is represented in Figure 1. Of the 77,297 STD claimants who comprised the sample, 8,880 (11.5%) continued on to receive LTD benefits. From this group, 3,013 (33.9% of the LTD group; 3.95% of the STD group) progressed to SSDI disability benefits by the end of the study period. Approximately one in nine STD recipients progressed to LTD status; approximately one in three of these claimants progressed to SSDI status.

Extraction of Neurological Claims

For purposes of this study, neurological disability is defined as an impairment involving an injury to the brain in the form of an inflammatory condition, cerebrovascular condition, or skull fracture. Neurological impairments of the brain involving hereditary or degenerative conditions were not included in this study. From the original population of 77,297, the study sample extracted for this study involved precisely 400 claims, each of which included the following information: claimant age, gender, ICD-9 disability

code, region of residence, standard industrial code and presence/absence in LTD and SSDI status

Results

Analyses of these data were focused upon three areas:

- Comparing the PODB of the study sample with neurological impairments versus the PODB of the population with general disabilities;
- Exploring the characteristics of claimants with different types of neurological diagnoses (ICD-9 code); and
- Examining the PODB as it relates to neurological injuries across the variables of age, gender, geographic region, industry type and the neurological injury sub categories.

Differences in Neurological Versus General Disability Claimants

Table 1 compares the variables of age, gender, geographic region, and employer industry in the study sample (neurological) versus the population (general disabilities).

Demographics

Compared to claimants with general disabilities, claimants with neurological injuries were younger and more likely to be male. In investigating claimants by industry type and impairment, the neurological sample includes more individuals working in the Government/Transportation and Retail industries and fewer working in the Finance and Service Industries. The Goods Producing industry (primarily manufacturing) reflected virtually no difference between groups. In examining claims patterns across geographic

regions, there was no statistically significant difference between claimants with neurological versus general disabilities.

The Major Finding: Neurological Versus General PODB

There exists a significant relationship between study sample (i.e., neurological) versus the population (i.e., general disabilities) with respect to the migration of workers along the PODB. Individuals with neurological disabilities were far more likely to move to advanced disability status (i.e., LTD and SSDI) than individuals with general disabilities ($\chi^2 (2, N= 77297) = 12.10, p < 0.01$). Far more claimants with neurological impairments (11.5%) progressed from STD to LTD (but not SSDI) status versus 7.6% of the claimants with general types of disabilities. Similarly, 5.5% of claimants with neurological injuries progressed from STD to LTD and then to SSDI status compared to 3.9% of claimants with general disabilities. Overall, a total of 17% of claimants with neurological injuries moved to a more advanced disability benefit status (LTD and SSDI) versus 11.5% of claimants with general disabilities. See Table 2.

Study Sample Sub-Categories

The next set of analyses compared the 3 types of neurological injuries (Inflammatory, Cerebrovascular, and Skull Fractures) according to frequency of claims, demographic, and industry variables.

Neurological injury subcategories.

Data were available for 400 claimants (100%) with respect to type of neurological injury as reported in their ICD-9 code. In its entirety this sample consisted of 18 individual ICD-9 codes grouped into three subcategories: inflammatory conditions,

cerebrovascular impairments and fractures to the skull as shown in Table 3. Due to similarity of clinical presentation, the code “specific nonpsychotic mental disorders due to organic brain damage,” was merged with the code “inflammatory diseases of the central nervous system.” For similar reasons, the category “cerebrovascular impairment (CVA)” is limited to claimants’ 40-years-of-age and younger. As can be seen in Table 3, fractures of the skull make up the largest subcategory of neurological disability claims in the study sample (50.3%) - many of these cases are known to involve TBI treatment- followed by inflammatory conditions (25.3%) and cerebrovascular diseases (24.5%).

Demographics Differences Among the Sub-Categories

Figures 2 and 3 detail results regarding the relationship of neurological injury categories and select demographic variables. A small but statistically significant gender difference emerged among subjects in our sample (i.e., overall, there are slightly more female than male claimants with neurological injuries, 52.3% females vs. 47.8% males). Within categories, claimants with inflammatory and cerebrovascular impairments were more likely to be female. However claimants within the fractures of the skull category were more likely to be male, a demographic finding consistent with TBI national statistics.

Figure 3 presents results regarding the relationship of neurological impairment subcategories and age. Once again, a statistically significant relationship emerges – for all neurological injury categories, the total number of claims reach their peak frequency within the 25-34 age group and then decrease with each subsequent age category. However, the cerebrovascular and skull fracture categories show a large decrease in

representation with an increase in age whereas the inflammatory category shows relatively small decreases until the 55+ age category. Since the cerebrovascular category contains only individuals 40-years-of-age or younger, data are absent from the 45-54 and 55+ age groups. Thus, trend data involving age should be viewed with caution.

Geographic Region

A Chi-square test of independence revealed that the variables of neurological injury and geographic region are not significantly related ($\chi^2 (6, N= 400) = 4.17, p < 0.65$. Phi equals .102 $p < .654$).

Industry

Assessing the relationship across type of industry and neurological disability subcategories, a chi-square test of independence revealed that these variables were not independent. Data ranged from a low of 6.3% to a high of 62.5%. Across all industries, both the Goods Producing and Service industries had more claimants representing all subcategories. Yet, while claimants with inflammatory and cerebrovascular conditions primarily are represented in the Service industry (49.5% and 49%), claimants with skull fractures are primarily represented in the Goods Producing industry (38%). See Figure 4.

Second Major Finding: Sub-Category PODB Comparisons

PODB and Neurological Injury Sub-Categories

Data from claimants with neurological injuries were examined in light of their migration across disability benefit systems (i.e., STD, LTD, and SSDI). A Chi-square test revealed a significant relationship between the neurological impairment sub-categories and migration to more advanced PODB levels. Among the sub-categories,

claimants with cerebrovascular impairments were the most likely to advance to LTD and SSDI (30.6%). Claimants with head fractures (traumatic brain injuries) were the second most likely to advance to SSDI (2.0%). Conversely, claimants with inflammatory conditions were the least likely to move on to LTD (7.9%); however, once they did advance to LTD, they were more likely than claimants with head fractures to move on to SSDI (5.9% vs. 2.0%).

Region

Movement across disability benefits for claimants with neurological impairments is related to the region of claimant residence. A Chi-square analysis of the PODB by region revealed that these two categories are not independent of each other ($\chi^2(6, N=400) = 16.07, p < 0.013$). Phi is 0.20, $p < 0.013$. The percentage of claimants with neurological injuries progressing to LTD ranges from a low of 7.5% in the Midwest to a high of 28.9% in the West. Those claimants progressing to SSDI ranges from a low of 0% in the West to a high of 7.5% in the Midwest. In addition, while the West had the highest percentage of claimants with neurological injuries in advanced disability benefit status (28.9%), none moved to SSDI (0%). See Figure 6.

Age, Gender and Industry Variables

Chi-square tests of independence on the relationship between PODB status and claimant age, gender, and industry variables were not significant.

Discussion

The authors investigated and analyzed various relationships among the variables of disability (neurological vs. general), neurological impairment subcategories, age,

gender, geographic area, employer industry, and disability benefit status. In the study sample, neurological impairments-- defined as conditions involving an injury to the brain in the form of an inflammatory condition, cerebrovascular condition, and skull fracture-- account for less than 0.005% of the overall disability benefit claims available in the UNUM/Provident data set. When compared to general disabilities, claimants with neurological disabilities tended to be younger (in part due to preselection for the CVA claims) and male. Claimants with neurological disabilities tended to be better represented in the Goods and Services Industries, than in Government/Transportation and Retail Industries. Most important, neurological claimants also were more likely to progress to advanced disability benefit levels of LTD and SSDI than individuals with general disabilities. Indeed, 17% of claimants with neurological disabilities progressed to advanced disability benefit levels (LTD and SSDI) compared to 11.5% of the general disability population.

When the study sample was further divided into three ICD-9 subcategories, a simple majority had a neurological impairment resulting from a head fracture. Claimants within this sub-category also were more likely to be male. With respect to PODB migration, progression was related clearly to the sub-category of neurological impairment. Specifically, claimants with cerebrovascular impairments were more likely to move forward to advanced disability benefit levels.

Implications

In general, these data suggest that individuals with neurological impairments are more likely to move on to advanced levels of disability benefits. Future research might

explore possible reasons for the enhanced PODB problem. For example, it may be attributable to:

1. The unique functional limitations characteristics of persons with neurological injuries (i.e., are these limitations more work-limiting)?
2. Environmental barriers that are unique to neurological impairments (i.e., are these barriers more work-limiting)?
3. Attitudinal barriers that result in discrimination against persons with neurological impairments (i.e., are these attitudes more work-limiting)?

The results of this study provide an initial attempt to document the PODB as it relates to claimants with neurological impairments. Future studies should further analyze the PODB among workers with neurological impairments while accounting for additional workers with workplace factors that may influence the migration. Studying additional information regarding impairment etiology and severity, claimant occupation, employee benefit and compensation programs and employer policies and practices related to neurological impairment would allow us to more fully understand the PODB and interaction with other employee and employer variables.

It is evident that enhanced levels of PODB are in clear opposition to the goals of the independent living movement (i.e., community integration and return to work). Higher than average rates of placement into the SSDI system does not bode well for return to work and the enhanced independence it affords.

The PODB research team is currently exploring the potential for Disability Management (DM) programs to interrupt the progression—which attempt to prevent

disability, reduce the cost impact of disability and provide mechanisms to promote maximum functional recovery and return-to-work –to interrupt the PODB migration. Integrated DM refers to those programs that are implemented across all disability plans (e.g., STD, LTD, worker compensation, and salary continuation) in addition to group health plans. In addition to integration, DM programs are characterized by transitional employment (modified work duty), aggressive case management and return-to-work practices; use of independent medical examinations; and the use of behavioral health interventions and/or employee assistance programs. DM programs have exploded in popularity among larger employers. For example, in one recent survey of major employer, 46% reported having integrated DM programs in 1998 compared to just 26% in 1995 (Washington Business Group on Health and Watson Wyatt Worldwide Consulting Group, 1999). To the extent that DM programs continue to proliferate, persons with neurological impairments will experience greater labor force participation and reduced dependence on SSDI.

The Ticket to Work and Work Incentives Improvement Act of 1999 (TWWIIA) provides states with new options and flexibility to make it possible for people with disabilities to join the workforce. TWWIIA Title I establishes the “Ticket to Work and Self Sufficiency Program.” This policy will make more service providers available to SSDI beneficiaries seeking vocational rehabilitation and other support services to assist them in obtaining and maintaining employment. Under the Ticket to Work program, tickets will be issued to SSDI beneficiaries, who will have the option purchasing services from providers of their choice (i.e., employment networks). Employment networks also

will be able to choose who they serve under the program, which is expected to be available in all states in 2004. TWWIA Title II permits states to extend the availability of Medicare and Medicaid coverage so those SSDI recipients can return to work without fear of losing these valuable benefits. To the extent that TWWIAA is effective, persons with neurological impairments will experience greater labor force participation and reduced dependence on SSDI.

At the root of each type of program (DM and TWWIA) is the desire to reduce disability income replacement payments. The challenges of vocationally restoring persons with severe neurological impairments to competitive employment have been well-documented (McMahon and Shaw, 1989; Brooks, McKinlay, & Symington, 1987; Prigatano, Klonoff, & O'Brien, 1994). Indeed, it is possible that no group of persons with disability represents more complex issues. These notwithstanding, aggressive vocational interventions have been successful in as many as 55 to 60% of clients served (Fraser & Clemmons, 1999).

The independent living model is consistent to the goals of most people with disabilities who want to control their lives, and live as independently and productively as possible in their communities. Both disability rights advocates and researchers have argued that the goals and policies of other disability laws and programs, including the Social Security disability programs, need to be made consistent with the independent living goals of the ADA (National Council on Disability, 1986, 1988; DeJong & Batavia, 1990; Batavia, 1998). This growing consensus both within the disability community and among the public at large suggests that there will be growing political support for

programs that allow people with disabilities to live and work independently (Batavia, 1998). In the process, interventions with the potential to abort or at least minimize the PODB phenomenon will be viewed as progressive. Conversely, PODB provides an additional tool which progress toward IL can be measured.

In conclusion we believe that results of this study provide an initial attempt to document the PODB as it relates to claimants with neurological impairments. This descriptive study primarily allowed for a basic understanding of the variables that may influence a claimant's advancement in disability benefits. Future studies should further analyze the PODB among workers with neurological impairments while accounting for additional worker and workplace factors that may influence the migration. Studying additional information regarding disability etiology and severity, claimant occupation, employee benefit and compensation programs, and employer policies and practices related to disability, would allow us to more fully understand the PODB and its interaction with other employee and employer variables.

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Table 1: Neurological vs. General Conditions

	N	Claimants by gender (%)		Claimants by region (%)				Claimants by industry (%)					
		Mean age	M	F	NE	S	MW	W	Good	Gov/ Tran	Retail	Finance	Service
Neuro	400	31.2	47.8	52.3	41	30	20	10	31	7.8	15.5	4	41.8
General	77199	37.1	35.7	64.3	39	30	20	10	30.1	5.6	11.9	8.3	44

Table 2: Progression of disability benefits by disability benefit level

Disability	% of claimants by advanced disability benefit level		
	STD	LTD	SSA
Neuro	83	11.5	5.5
General	88.5	7.6	3.9

Table 3: Neurological Injury Sub-Categories

Categories	N	Percent of total	ICD-9 Code	ICD-9 Title	N	Percent of Category
Fractures	201	50.30%	800	Fracture of vault of skull	30	7.50%
			801	Fracture of base of skull	8	2.00%
			802	Fracture of face	142	35.50%
			803	Other and unqualified skull fractures	20	5.00%
			804	Multiple fractures involving skull or face with other bones	1	0.30%
Inflammatory conditions & organic brain damage	101	25.30%	310	Specific nonpsychotic mental disorders due to organic brain damage	76	19.00%
			323	Encephalitis, myelitis, and encephalomyelitis	17	4.30%
			324	Intracranial Abscess	6	1.50%
			325	Phlebitis and thrombophlebitis of intracranial venous sinuses	2	0.50%
Cerebro-vascular conditions	98	24.50%	430	Subarachnoid hemorrhage	13	3.30%
			431	Intracerebral hemorrhage	7	1.80%
			432	Other and unspecified intracranial hemorrhage	3	0.80%
			433	Occlusion and stenosis of precerebral arteries	4	1.00%
			434	Occlusion of cerebral arteries	5	1.30%
			435	Transient cerebral ischemia	9	2.30%
			436	Acute, but ill-defined cerebrovascular disease	44	11.00%
			437	Other and ill-defined cerebrovascular disease	12	3.00%
			438	Late effects of cerebrovascular disease	1	0.30%

Table 4: Demographic variables by neurological injury categories

		Neurological injury categories			Total
		Inflammatory	Cerebrovascular	Fracture	
Age - N and percent of Neurological Injury Clusters	15-24	4 4.00%	8 8.20%	30 15.00%	42 10.60%
	25-34	32 31.70%	51 52.60%	80 40.00%	163 41.00%
	35-44	29 28.70%	38 39.20%	50 25.00%	117 29.40%
	45-54	28 27.70%	0 0	25 12.50%	53 13.30%
	55+	8 7.90%	0 0	15 7.50%	23 5.80%
Age - Percent of age groups	15-24	9.50%	19.00%	71.40%	100%
	25-34	19.60%	31.30%	49.10%	100%
	34-44	24.80%	32.50%	42.70%	100%
	45-54	52.80%	0	47.20%	100%
	55+	34.80%	0	65.20%	100%
	Total	25.40%	24.40%	50.30%	100%
Gender -N and percent of neurological injury clusters	Male	32 31.70%	47 48.00%	112 55.70%	191 47.80%
	Female	69 68.30%	51 52.00%	89 44.30%	209 52.30%
Gender-Percent of age groups	Male	16.80%	24.60%	58.60%	100%
	Female	33.00%	24.40%	42.60%	100%
	Total	25.30%	24.50%	50.30%	100%

Table 5: Geographic region and industry type by neurological injury categories

		Neurological injury categories			Total
		Inflammatory	Cerebrovascular	Fractures	
Geographic Region- N and percent of neurological category	Northeast	45	39	78	162
		27.80%	24.10%	48.10%	100%
	South	26	34	60	120
		21.70%	28.30%	50.00%	100%
	Midwest	18	19	43	80
		22.50%	23.80%	53.80%	100%
	West	12	6	20	38
		31.60%	15.80%	52.60%	100%
Industry type- N and percent of neurological category	Goods	24	23	77	124
		19.40%	18.50%	62.10%	100%
	Government	9	6	16	31
		29.00%	19.40%	51.60%	100%
	Retail	8	20	34	62
		12.90%	32.30%	54.80%	100%
	Real estate	10	1	5	16
		62.50%	6.30%	31.30%	100%
	Services	50	48	69	167
		29.90%	28.70%	41.30%	100%

Table 6: Percent of claimants progressing through disability benefit levels by demographic, geographic, industry, and neurological injury categories

		Highest benefit level (%)		
		STD	LTD	SSDI
Age	15-24	78.6	16.7	4.8
	25-34	88.3	7.4	4.3
	35-44	81.2	13.7	5.1
	45-54	84.9	11.3	3.8
	55+	60.9	21.7	17.4
Gender	Male	81.2	13.6	5.2
	Female	84.7	9.6	5.7
Geographic region	Northeast	85.2	8.6	6.2
	South	82.5	12.5	5.0
	Midwest	85.0	7.5	7.5
	West	71.1	28.9	0
Industry type	Goods	86.3	9.7	4
	Government	67.7	22.6	9.7
	Retail	83.9	9.7	6.5
	Real estate	93.8	0	6.3
	Services	41.3	45.7	40.9
Neurological Injury Category	Inflammatory/Organic	86.1	7.9	5.9
	Cerebrovascular	69.4	18.4	12.2
	Fractures	88.1	10	2
Total		83	11.5	5.5

Figure 1: Progression of Disability Benefits

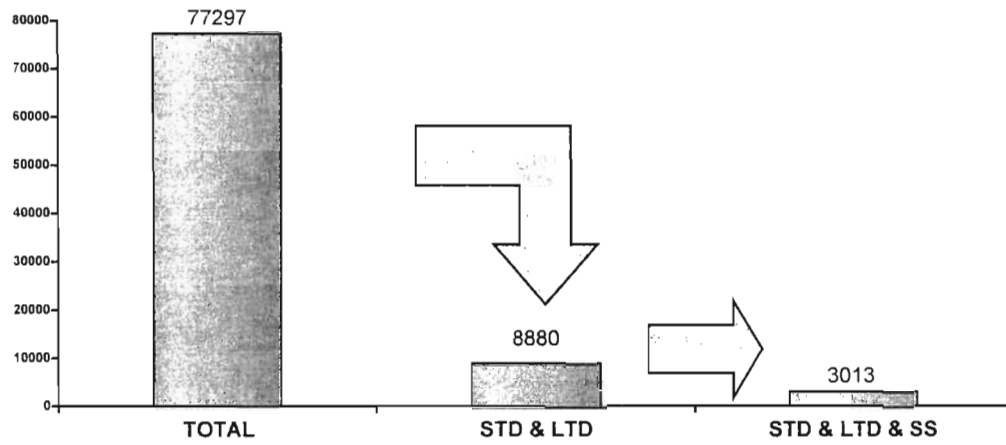


Figure 2: Percentage of neurological disability subcategories by gender

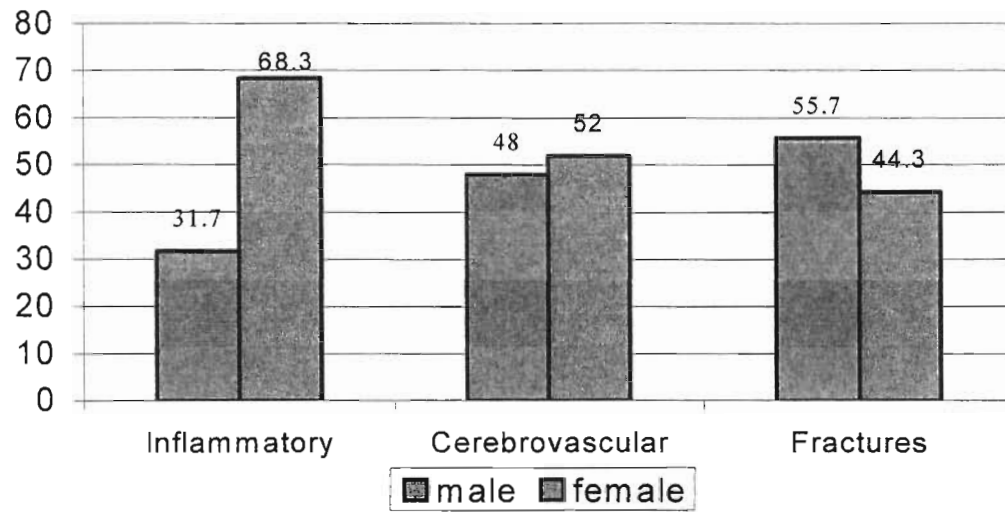


Figure 3: Percentage of neurological disability subcategories by age

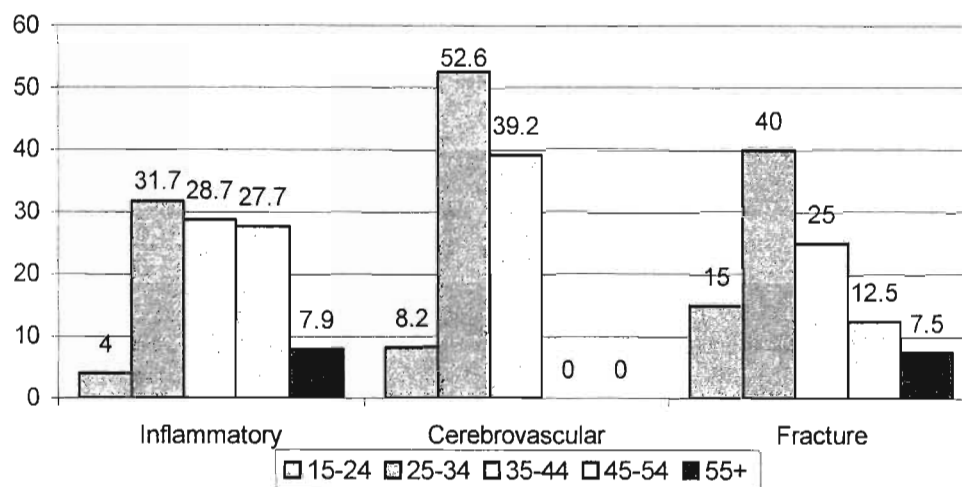


Figure 4: Percentage of neurological disability subcategories by age

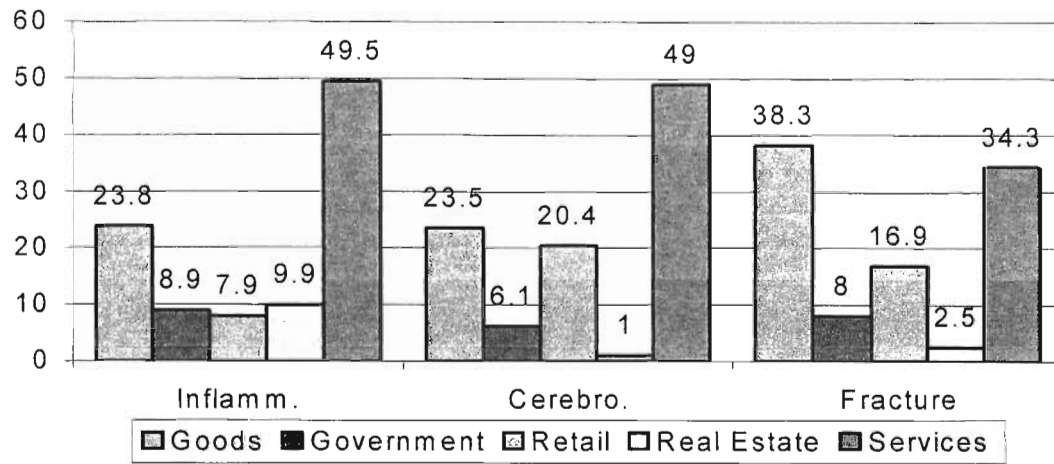


Figure 5: Percentage of PODB by neurological disability subcategories

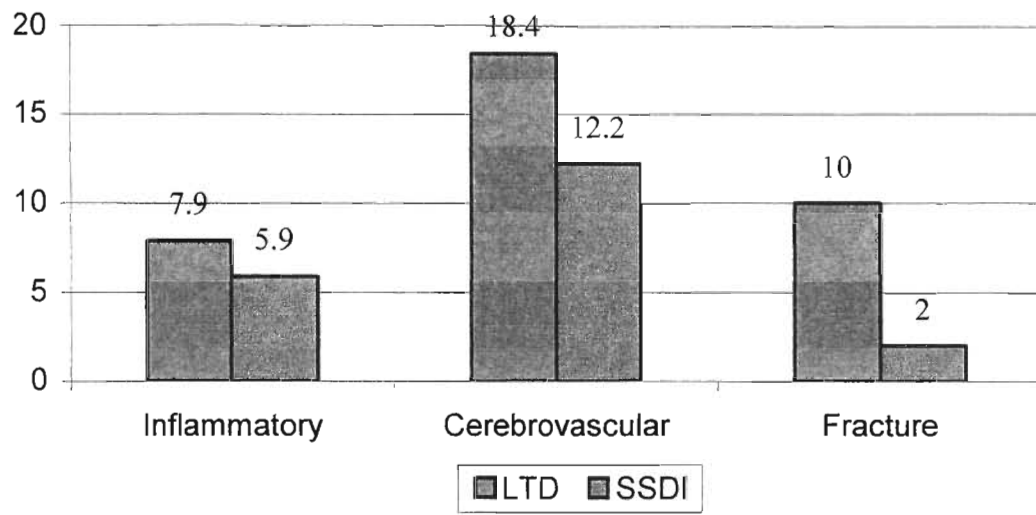
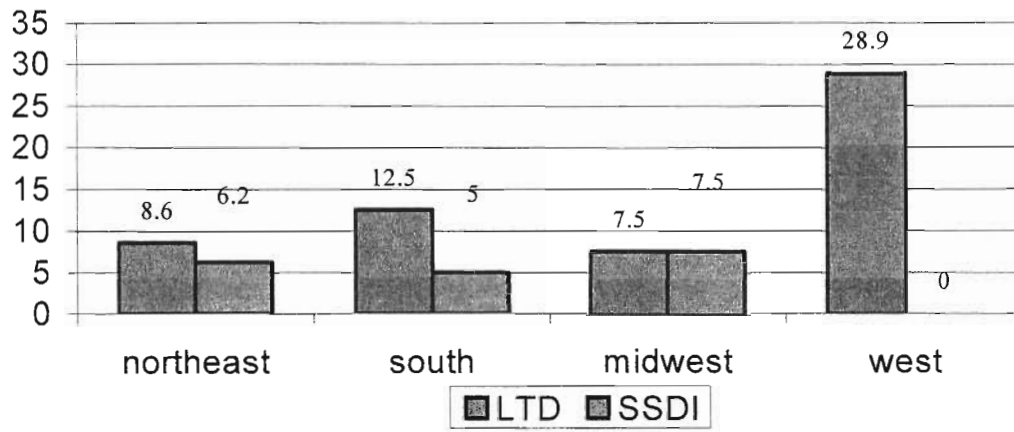


Figure 6: Percentage of PO DB by region



CHAPTER III

Progression of Disability Benefits as a Measure of Disability Management

Program Effectiveness: Implications for Future Research

By

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Abstract

This study is a subset of a larger project that describes and documents the migration of individuals with work-limiting disabilities as they move through a system of economic disability benefits resulting in their ultimate placement into the Social Security disability system. Specifically, this migration involves a “progression” of sorts from short-term disability to long-term disability to social security disability income. This phenomenon has been labeled the Progression of Disability Benefits (PODB).

This particular aspect of the PODB project examines the association of PODB with employer disability management practices and integrated disability benefit practices. Specifically, 42 employers were contacted to complete a survey of their integrated disability benefit programs. These results were then compared with their PODB experience. It was found that employer demonstrating higher levels of integrated disability management activity experienced reduced PODB ratings.

Progression of Disability Benefits as a Measure of Disability Management

Program Effectiveness: Implications for Future Research

Regardless of its auspices, research is a cumulative and integrative process. New knowledge comes from many sources, often in response to various policy initiatives. The Disability Policy Panel of the National Academy of Social Insurance (1996) has called for research that explores "...the consequences of benefit design changes or service intervention that would facilitate return to work." The same spirit is contained in the Presidential Executive Order (National Task Force on Employment of Adults with Disabilities, 1998). This document contains a mission statement that includes to "analyze...private disability systems and their effect upon federal programs and the employment of adults with disabilities." Finally, the National Institute on Disability and Rehabilitation Research (2001), has called for research projects that study "...the identification and evaluation of disability management practices by which employers can assist workers who acquire or aggravate disabilities to remain employed, transfer employment, or remain in the workforce and out of public benefits programs." Following these aims, these authors have embarked on an initial study, to assess a phenomenon referred to as the progression of disability benefits (PODB) and its relationship to disability management (DM) practice. Implications for future research are provided.

Progression of Disability Benefits

PODB refers to the migration of workers, who develop a work-limiting injury or

illness as they move through a system of economic disability benefits resulting in their ultimate placement in the Social Security Administration (SSA) disability system (SSDI). This phenomenon was documented by McMahon, Danczyk-Hawley, Reid, Habeck, Flynn, Owens & Kregel (2000), through a study of an UNUM/Provident database of all claimants receiving short-term disability (STD) from the period of 1994-1996. A statistically significant and systematic movement of claimants from STD to long-term disability (LTD) to SSDI was found. More specifically, approximately one in nine claimants with STD moved on to collect LTD, and one in three claimants on LTD advanced further to SSDI. As documented by McMahon, et al. (2000), the progression became even more systematic when additional features about the claimant (i.e., age, gender, region of residence, and disability type) and employer (standard industry code) were known.

Why is the investigation of PODB important? It has been hypothesized that insurance companies engage in cost-shifting to recoup dollars lost in compensated benefits (Hunt, Habeck, Owens, & Vandergoot, 1996; Schwartz, 1984). Cost shifting is the process whereby insurers recover a portion of the claimant's benefit costs collected under LTD by actively assisting individuals in obtaining SSDI benefits. Thus, when employees do not return to work, the final solution for insurers is one of cost-shifting to the public sector. While this cost-shifting obviously increases the public disability program enrollment and costs, it is also costly to the private sector employer. Butler, Gardner and Gardner (1998) documented that such cost-shifting results in increased benefits use and reduced overall productivity for the organization

Once an individual proceeds to collect SSDI compensation, their potential for return to work is minimal at best. The General Accounting Office (GAO, 1996) states that no more than 1 in 500 SSDI beneficiaries has departed the rolls in recent years because of return to work. Only 1 in 200 is even referred for vocational rehabilitation services to the state-federal program. In a careful cohort study of SSDI beneficiaries, Muller (1992) estimated that benefit terminations due to return to work occurred in less than 3% of all cases, and at least one-third of these eventually returned to the SSDI rolls. Yet, 72% of people with disabilities out of the workforce report that they want to work (Harris, 1998). So while a combination of cost-shifting, expanding accessibility, growing public awareness, SSA outreach, and changes in claimant behavior have resulted in a dramatic escalation in SSDI applications, the rate of departure from SSDI has actually been falling in recent years (Habeck & Hunt, 1999). The result has been a significant increase in the number of public disability beneficiaries in the US every year since 1982.

Integrated Disability Management

During the eighties, employers were seeking ways to protect themselves from rapidly escalating health care and disability costs. For example, from 1980 to 1988 the cost of providing LTD benefits increased by nearly 80% while the cost of providing STD benefits increased by 50% (Barge & Carlson, 2001). Though the managed care revolution was able to stabilize medical costs in the 1990s, worker's compensation (WC) losses are again climbing and group health and disability costs are resuming the upward spiral. Disability costs are rising faster than ever, and are projected to increase by 11% in 2001 (Mercer, 2001).

Disability management (DM) is an approach generated from employer efforts to control rising disability costs. Akabas, Gates, & Galvin (1992), define DM as:

a workplace prevention and remediation strategy that seeks to prevent disability from occurring or, lacking that, to intervene early following the onset of disability, using coordinated, cost-conscious, quality rehabilitation service that reflects an organizational commitment to continued employment of those experiencing functional work limitations. The remediation goal of disability management is successful job maintenance, or optimum timing for return to work (pg.2).

The concept of integrated disability management (IDM) is a simple one -- link the entire administration of health care, benefit, and case management components so they complement each other. In doing so, the employer can avoid the conflicting philosophies, redundant administrative costs, and internal turf issues that can result from administration of different benefits in separate corporate departments. In its basic form, IDM coordinates occupational and nonoccupational disability benefits as well as absence and paid leave programs with a focus on early return to work (Flynn, 2000). Increasingly, IDM programs also coordinate health care, employee assistance and behavioral health care programs, health promotion, disease management, and medical case management services all aimed at improving overall workforce health, improving return to work, easing administrative burden, and providing a seamless set of benefits for workers with disabling injuries and illnesses.

Interest in IDM programs seems to be increasing as illustrated by the growing number of employers offering such services. A recent survey by the Integrated Benefits Institute (2000), shows that 45% of responding employers are actively exploring such initiatives or are integrating benefits. Two-thirds of those with 5,000 to 10,000 workers are

involved with integration plans, as are 81% of employers with more than 10,000 employees. A Watson Wyatt and Washington Business Group on Health survey (2000) found employers adopting IDM programs in order to: stem the rising costs of healthcare, reduce absenteeism and increase productivity, to manage the increasing prevalence of chronic illnesses (and resulting disability costs) among the aging work force, and to attract and retain employees.

PODB and DM

The efficacy of IDM programs has traditionally been measured by the bottom line. Does DM reduce overall disability costs? Going forward, the authors propose that the PODB experience for employers may be used as an additional yardstick for assessing the effectiveness of DM programs not solely for the private sector organization, but for the resulting savings accrued in the public SSA system as well. Can DM be used to avert the PODB? This project is an initial attempt to answer that question.

This study explores the relationship of IDM on PODB. These authors propose that employers demonstrating higher levels of IDM activity will experience a reduced PODB rating.

Methodology

Sampling Design

From the original UNUM/Provident database containing all STD claims filed from January 1, 1994 through December 31, 1996, 42 employers having 100 or more claims were extracted to participate in this follow-up study. The survey was developed using a modified version of the Watson Wyatt/Washington Business Group on Health

annual survey of employer DM integrated practices. This survey was developed to capture aspects of those DM practices determined to have the greatest impact on cost savings and productivity. Employer respondents were contacted through a mailing in September 2000. Respondents were requested to complete a survey that assessed their implementation of IDM practices. Of the 42 surveys delivered, 17 were returned after a maximum of two follow-up contacts. That is a response rate of 40%. Of the 17 employers who completed surveys, 9 surveys were deemed usable. The remaining eight employer surveys were not included because valuable data relating to the data collection period (1994 – 1996) were not provided. Variables studied include employer DM practices such as the presence or absence of: an Integrated Disability Benefits system (i.e., STD, LTD, WC); Behavioral Health Interventions or Employee Assistance Programs; Claims Reporting; Modified Duty or Return to Work; and Supervision or Administration Involvement.

Nine employers were utilized for this study representing a total of 2169 claimants. Key contact individuals for each organization were identified through UNUM/Provident to complete the survey. Individual job titles for the nine respondents were reported as: Benefits Manager, Human Resource Personnel, Human Resource Personnel, Vice President of Human Resources, Director Human Resources, Compensation Manager, Senior Benefits Administrator, Benefits Administrator, and Director of Employee Benefits.

These nine employers were then classified according to their Standard Industry Classification (SIC) code into 3 categories representing industry type. Four employers

were classified as Manufacturing industries, 3 employers were classified as Health Services industries, and 2 employers were classified as Service industries.

Instrument Design

The instrument was designed to evaluate the extent to which DM practices were developed within each respondent's organization for the years 1995 and 2000. The year 1995 was chosen because it was the midpoint of the data collection period for the UNUM/Provident database (i.e., the period corresponding to the PODB statistic). A comprehensive literature review was conducted to develop the instrumentation for the study. In addition, documents were retrieved from organizations already conducting work in the domain of interest, such as the Washington Business Group on Health and Watson Wyatt annual *Staying @ Work survey*.

Based upon previous research reviewed, five IDM practices were found to correlate highly with reduced costs. In addition, companies applying at least three of the five best practices had absence rates of 1.4 percent of their workforce as compared to 5.3 percent for firms without DM programs. Thus, absence rates are three times higher among firms that do not use DM best practices (Watson Wyatt & Washington Business Group on Health, 2000). The IDM practices surveyed include:

1. Use of a transitional or modified duty return-to-work program. That is, an established program or set of policies that facilitates return-to-work in a transitional or modified duty job for any employee with a disability (regardless of etiology or applicable benefit system).

2. Utilization of disability case management. In an IDM system, the case manager (typically a nurse case manager or vocational rehabilitation counselor) works not only with the workers' compensation cases, but the non-occupational disability cases as well.
3. A single point of contact within the organization for filing benefit claims whether STD, LTD or WC.
4. A single manager or department overseeing all of the benefit plans or programs (occupational and nonoccupational).
5. The involvement of a supervisor in the return to work process (Flynn, 2000).

After further review and development, these concepts were consolidated into 25 statements. Next, a Delphi technique was employed to refine and obtain consensus on survey items. The survey was sent to a group of expert advisers working within the field of DM for review and evaluation. The advisers were asked to critique the relevance of the statements until consensus was acquired. On the basis of these results, 19 of the previous 25 items were retained.

The survey form was organized into three sections. The first section related to integration of benefit practices. A. Respondents were asked to indicate whether their company utilized such practices as claims reporting, modified duty or return to work, case management, and supervision or administration. B. Each practice was rated as to whether these services were provided for all benefit plans (WC, STD, LTD); two benefit plans; or had different services for all plans; or does not know. The second section

related to current disability management practices. Respondents were asked to rate whether the items were developed and in place in the organization, in development in the organization, or not developed (if known). Items included transitional/modified return-to-work; case management; independent medical exams; behavioral health interventions or employee assistance programs. The final section included 3 questions related to specific organizational characteristics. This section was omitted from analysis due to incomplete data.

Results

Data analysis focused on three areas:

- Descriptive analysis of employer DM practices and PODB rates;
- Comparison of top three performing employers (low PODB) to the bottom three (high PODB); and
- A between groups comparison of PODB by industry classification.

The employer sample consisted of four Manufacturing organizations, three Health Services organizations, and two Service organizations representing a total of 2169 claimants (see Table 1). Employers were rated on the extent of IDM practice that was in place in 1995. Cumulative mean scores were calculated. Scores ranged from 1.50 to 2.63, with a mean score of 2.21. An ideal score would have been 3, a low score 0. The DM practices most reported as having been developed included: Behavioral Health/Employee Assistance programs, Case Management services, and Transitional/Modified Return to Work programs (see Figure 1). Furthermore, Claims Reporting was reported most frequently to involve the highest level of integration

between STD, LTD, and WC programs (refer to Figure 2). Subsequently, the individual employer PODB experiences were examined. For each employer, the total number of claimants in STD, in LTD, and SSDI were calculated. The percentage of claimants moving from STD to LTD ranged from 2.2% to 16.9%, with a mean of 7.1%. The percentage of claimants moving from LTD to SSDI ranged from 0% to 77.7% with a mean of 46.7%.

Comparing Top DM performers to Low DM Performers

Next, the respondents were segmented into two groups based on IDM ratings. The top three employers with the highest levels of IDM practice were compared to the three employers with the lowest levels of IDM practice (refer to Table 2). In examining the groups, a comparable experience is shown in the initial rate of employees receiving STD benefits for an injury or illness. The top group has a total of 702 claimants while the bottom group has a total of 704 claimants. However, this similarity ends as the progression into advanced levels of disability benefits is examined. As expected, the employers with low DM practices had greater movement of their employees into advanced disability status. Most notable, however, is the substantially greater movement of claimants into LTD (9.9% vs. 4.4%) and then into SSDI (54.2% vs. 51.6%). Thus, employers with fewer established DM practices had twice the STD to LTD progression rate. These differences create very considerable cost and productivity advantages for those employers with high levels of established DM practices.

Industry Group Differences

The final comparison involves assessing between group differences in PODB ratings based on industry classification: Manufacturing, Service, or Health Services. Initially the claimant demographic variables of age, gender, and ICD-9 code were computed for the industry segments (see Table 3). Regarding age, little variation is shown in claimants' mean age. Both the Health Service and Manufacturing industries have a similar mean age of 37.2 compared to 36.8. The Service industry has a slightly lower mean age of 34.2. Comparing gender distribution by percentiles, claimants from the Health Service (81.9% vs. 18.1%) and Service (76.9% vs. 23.1%) industries were predominately female, while claimants from the Manufacturing industry had a closer gender distribution with 57.6% males vs. 42.4% females. Claimants' disability type was classified into 11 different categories based on ICD-9 code (refer to McMahon, et al, 2000). Musculoskeletal conditions followed by Injury and Poisoning encompassed the greatest percentage of claimants for both the Manufacturing (22.3% & 18.1%) and the Health Service industries (18.6% & 17.9%). The largest percentage of claimant representation for the Service industry consisted of Respiratory conditions (21.8%) followed by both Musculoskeletal and Injury and Poisonings (15.1% & 14.9%). Claimant representation was similar in all industries regarding Neoplasm, Mental Health, Nervous and Sensory, Digestive, and Other conditions. Representation within the Circulatory category was similar for both the Health Services and Service industries, while somewhat higher in the Manufacturing industry. Whereas representation in the

Genitourinary category was similar for both Health Service and Manufacturing, and slightly lower in the Service Industry.

In evaluating the rate of PODB by industry, the Service industry, followed closely by the Manufacturing industry, has the highest rate of PODB with 8.8 % vs. 8.2% of claimants moving on to LTD, and 44.8% vs. 42.1% moving on to SSDI. Whereas the Healthcare industry has a much lower rate of progression to LTD (5.1%), with 54.1% of LTD claimants moving on to SSDI (refer to Table 4). Considering no clear pattern emerges regarding claimant demographic variables between industries, the extent to which these characteristics influence the PODB industry comparisons is unknown.

Conclusion and Future Research Needs

Research Implications for Employers

Previous evidence suggests that DM programs do reduce costs. However, previous research on the outcomes and effectiveness of DM practice has not assessed the employer's PODB experience. In an antecedent study, McMahon, et al. (2000), suggested that PODB may have use as a new tool for studying the value of DM (i.e., what do employer PODB rates tell about DM program efficacy?). Accordingly, the PODB model may provide a means for evaluating the ability of DM programs to change the disability experience rating for employers. Consistent with our hypothesis, we would expect that IDM practice would reduce PODB rates. As shown in the results, employers with greater levels of IDM had reduced movement of claimants on to advanced disability benefit levels. A possible explanation for the disparity in the prevalence of claimants moving from STD to LTD is that in a DM structure, early intervention typically occurs

within the first six months an individual is collecting benefits (i.e., the STD period). Conversely, there has been a lack of success in return to work for individuals in LTD because they have more severe injuries and illnesses. However, we have yet to fully understand the degree to which IDM practices affect PODB. This preliminary study provides a basis for future research.

While this study suggests that PODB may be averted with the use of IDM, additional research could employ PODB rates to evaluate specific DM features such as:

- Program effectiveness: does DM practice lead to a reduction in the number of claims and increase return to work?
- Benefit design adequacy: are the right incentives provided to encourage return to work versus dependency on disability benefits? and
- Claims administration capabilities: are claims where an individual could be returned to work recognized early enough or are claimants needlessly progressing into higher disability benefit levels?

Furthermore, research utilizing large sample sizes could develop industry specific benchmarks on PODB rates. Thus, employers could place themselves along a continuum to determine if their PODB activity is high or low compared to other employers within their industry.

The concurrent examination of additional variables (such as worker occupation, work environment, and employer response to disability) would also provide for a deeper understanding of the factors associated with PODB. Examination of other employer characteristics (beyond SIC code) may help us understand how organizational features

impact these rates. Knowing that employees in Health Service experience a lower level of PODB than their counterparts in the general Service industries (although claimant demographics are similar), we could further study the work environment to see how and why this occurs. For example, how do specific DM practices, benefit provisions, work culture, attitudes towards disability, employee demand, wages, unionization, and the like interact to influence the PODB?

Research Implications for Insurers

Disability insurance rates are based on long-developed actuarial tables which predict the rate at which employees will become disabled and leave work. These calculations are based (primarily) on demographic factors such as age of workforce, type of industry, geographic region, and the like. However, if the PODB rate (and, by extension, the number of employees leaving the workforce and ending up on SSDI) is influenced by the extent to which employers utilize IDM, this leads to implications for LTD insurance pricing. What PODB rates tell insurers is that PODB may be influenced by employer practice (i.e., utilization of IDM). Knowing PODB rates could provide a way to design more accurate rate pricing and incentives for managers to improve their handling of disability issues.

Research Implications for Public Policy

Does IDM avert the migration of claimants with an injury or illness from the private disability benefit system to the public system? If so, does DM provide the additional advantage of costs savings to the public SSA system? The data obtained from this preliminary study support the hypothesis that DM activities may interrupt and

minimize the PODB for employees collecting disability benefits. Thus, employers with IDM programs are relying less upon offsets (SSDI) to manage disability.

Burkhauser and Daly (1996) argue that the most effective way to decrease SSDI rolls is to initiate programs that would reduce the flow of new persons onto these rolls. If indeed IDM makes a difference in the number of new beneficiaries collecting SSDI, tax breaks for employers could be used as an incentive for encouraging employers to utilize IDM practices.

Research Implications for Rehabilitation Education

As DM evolves and new concepts such as PODB arise, the roles and responsibilities of rehabilitation practitioners in a DM setting must also advance. A recent study by Chan, Taylor, Currier, Chan, Wood & Lui. (2000) of DM consultants revealed that professionally there is an increasing emphasis on providing case management functions for rehabilitation practitioners. Specifically, Chan et al. (2000) identified four major job functions reported by respondents: Managerial/Consultive Roles in DM; Vocational Counseling/Assessment and Job Placement; Disability Case Management; and Early Return to Work Intervention. The reported knowledge domains needed for competence in these areas of practice include: psychosocial intervention skills; vocational aspects of disability; disability case management; human resources/business knowledge; and managed care and managed disability. However, while these knowledge domains are necessary for effective DM practice, research has demonstrated that such training is lacking both in nursing preparation (Haw, 1996) and in rehabilitation counseling preparation (Chan, McMahon, Shaw, Taylor, & Wood, 1997).

Research has conveyed that DM has become an emerging practice area for private rehabilitation practitioners (Leahy, Chan, Taylor, Wood, and Downey, 1999), thus, CORE accredited program curricula should respond proactively to emerging needs and roles; this includes offering relevant new courses, infusing principles of DM into existing courses, and developing new DM internship sites (Rosenthal & Olsheski, 1999).

Research Implications for People with Disabilities

What does PODB mean for persons with disabilities? Further exploration of the relationship between claimant characteristics and the PODB might allow us to examine the interventions targeted at unique groups of workers. Indeed, some disability specific PODB studies have been completed (Danczyk-Hawley, McMahon & Reid, in press; Wagner, Danczyk-Hawley, & Reid, 2000). But more detailed studies would allow for an improved understanding of how workers come to STD status and the factors associated with initial incidence as well as migration through the progression. This may lead to the development and implementation of optimal and appropriate DM strategies to avert the PODB and return employees to work.

Additionally, it is well known that the United States workforce is both aging and shrinking relative to the need for qualified workers. Current demographic data are compelling in that life expectancy is soaring while birth rates are declining (Calkin, Lui, & Wood, 2000). Therefore, employers will need to maintain a productive workforce. Also, as our workforce ages, a shift will occur in the needs of disabled workers from medical care for acute injuries and conditions to care for chronic, ongoing health problems. Obviously, programs such as IDM, that can return workers to productive

employment, may represent the best possible hope for interrupting the PODB and retaining valuable employees in the workforce.

As employers experiment with more expansive employee benefit programs designed to improve chronic illness management, current SSDI beneficiaries may find the workplace a more secure and inviting alternative under such policies as the Ticket to Work/Work Incentives Improvement Act (Flynn, 2000). DM efforts to improve return to work outcomes (thereby resulting in reduced enrollment and dependence on SSDI), will ultimately result in greater workplace flexibility and reduced benefit costs. This, in turn, will pave the way for improved employment prospects for people with disabilities.

Looking ahead, many employers who have implemented some form of IDM program understand how to use services to optimize return to work. A study of WBGH members found that the presence of DM programs can contribute to increased workplace accommodations and enhanced acceptance of employees with disabilities (Bruyere, 2000). Furthermore, employers with IDM programs indicated that those programs contribute to ADA implementation, greater supervisor awareness of the accommodation process, the establishment of an organizational structure for accommodations, and recognition of the importance of confidentiality of medical information. In addition, as more companies realize the benefits of DM programs, acceptance of people with disabilities in the workplace will increase. This points to the need for more research that evaluates the impact of DM programs on the hiring and retaining of employees with disabilities.

This study is an initial attempt to demonstrate how employers who utilize the philosophy and practice of IDM programs can substantially prevent and control work disability and the progression of workers with an injury or illness onto lifelong dependency on the SSA system. With the expansion of DM, employers are realizing that they can exert considerable control over many factors that impact the cost of disability in the workplace (Shrey & LaCerte, 1995). The Washington Business Group on Health in collaboration with Watson Wyatt Worldwide has been surveying employers regarding their DM activities since 1996. The most recent survey illustrates that 43% of large employers have implemented some form of IDM (WW & WBGH, 2000). That is up from just 26% in 1996. Reasons cited for this growth include greater productivity and more cost-effective outcomes. PODB provides an additional example that things employers do can make a difference in disability experience. Yes, it does matter what employers do.

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Table 1: Employer IDM and PODB levels.

Industry	Integration & DM	PODB- N			PODB %	
		STD	LTD	SSDI	LTD	SSDI
Manufacturer	2.63	229	16	6	6.9	37.5
HealthService	2.63	407	9	7	2.2	77.7
Service	2.63	66	6	3	9.0	50
Manufacturer	2.38	88	5	5	5.6	100
Manufacturer	2.25	190	5	4	2.6	80
Service	2.17	485	43	19	8.9	44.1
HealthService	2.17	478	38	19	7.9	50
Manufacturer	1.54	183	31	9	16.9	29
HealthService	1.50	43	1	0	2.3	0
MEAN=2.21		2169	154	72	MEAN=7.1	MEAN=46.7

Note. PODB refers to the progression of disability, STD to short-term disability, LTD to long-term disability, and SSDI refers to Social Security Disability Insurance.

Table 2: Top DM performers vs. low DM performers.

DM Ratings	PODB -N			PODB %	
	STD	LTD	SSDI	LTD	SSDI
Top 3 employers	702	31	16	4.4	51.6
Lower 3 employers	704	70	39	9.9	54.2

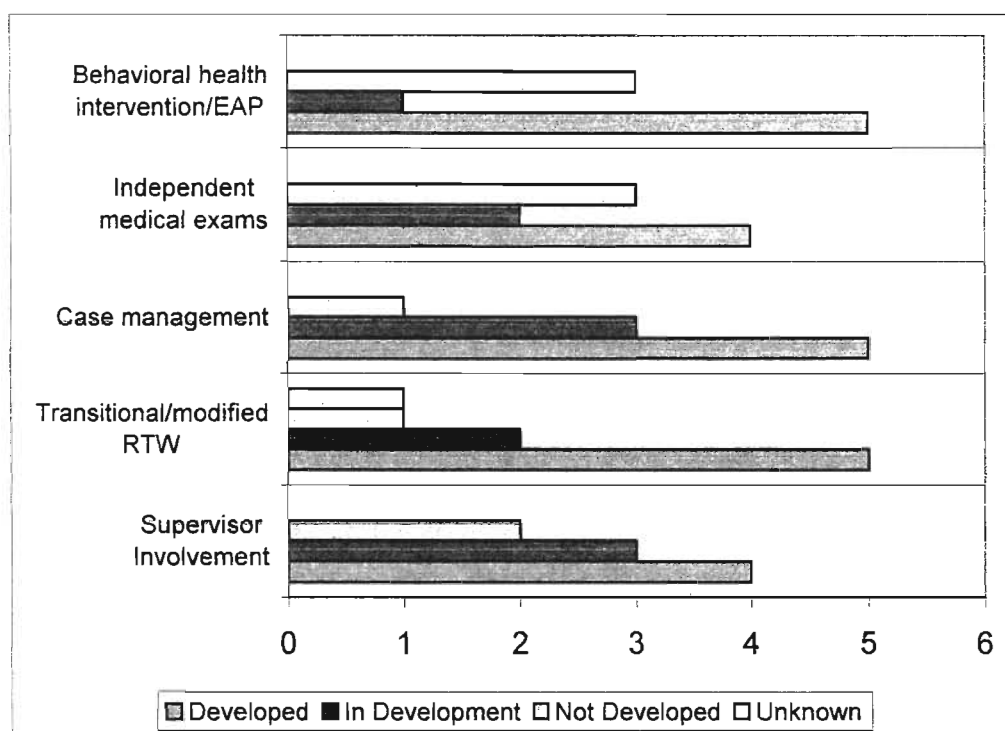
Table 3: Claimant Demographics by Industry Type

	<i>Service</i>	<i>Manufacturing</i>	<i>Health Services</i>
Mean Age	34.2	36.8	37.2
Gender- Percentiles %			
Male	23.1	57.6	18.1
Female	76.9	42.4	81.9
ICD-9 Code - Percentiles %			
Infectious, Endocrine, Blood	8.7	3.6	4.2
Neoplasm	6	6.8	6.4
Mental Health	6	6.8	7.1
Nervous & Sensory	4.9	4.2	4.4
Circulatory	3.6	8.4	4.1
Respiratory	21.8	5.1	9.7
Digestive	7.8	9.1	10
Genitourinary	4.5	8.6	9.4
Musculoskeletal	15.1	22.3	18.6
Injury & Poisoning	14.9	18.1	17.9
Other	6.7	7	8.2
Total	100	100	100

Table 4: PO DB by Industry Type.

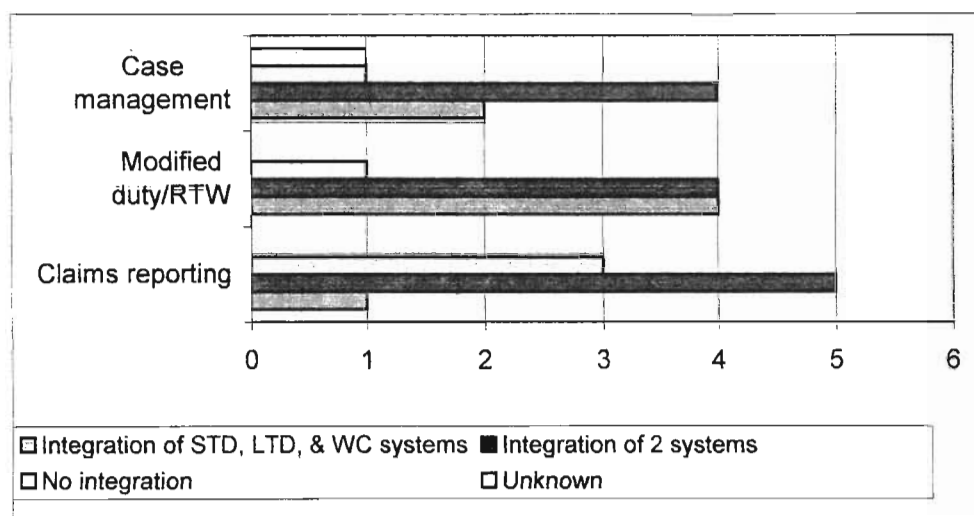
Industry	% PO DB	
	LTD	SSDI
Service	8.8	44.8
Manufacturing	8.2	42.1
Healthcare	5.1	54.1

Figure 1: Development Level of DM activities



Note. EAP refers to Employee Assistance Program. RTW refers to return to work.

Figure 2: Integration Level for DM practice



Note. Integration of 2 systems refers to either STD, LTD or WC.

CHAPTER IV
Employees' Progression through Disability Benefits within the
Healthcare Industry

By:

Carolyn E. Hawley

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Abstract

Progression of Disability Benefits (PODB) refers to the migration of workers with work-limiting disabilities through a system of economic disability benefits that result in their ultimate placement into the Social Security Disability Insurance (SSDI) system (McMahon, et al., 2000). Specifically, this migration involves a “progression” from short-term disability (STD) to long-term disability (LTD) to SSDI income.

This project uses Chi-squared Automatic Interaction (CHAID) Technique to study the Healthcare industry, the largest industry in the United States, and its PODB experience. The first part of the study analyzes if claimant demographic (age, gender, disability type) and PODB data (movement from STD to LTD to SSDI) can be used to predict employer industry (dependent variable). Gender was the most significant predictor, while men working outside of Healthcare had the greatest amount of progression to advanced disability levels. The second part of the study assesses if the PODB experience could be predicted through claimant demographics and the sub-set industry within Healthcare in which claimants’ were employed. The resulting dendrogram reveals that disability type was the strongest predictor of claimant movement through disability benefits levels. Age was the second strongest predictor for all but 1 category of disability type, in which the Healthcare sector was the strongest predictor.

Employees' Progression through Disability Benefits within the Healthcare Industry

Progression of Disability Benefits (PODB) refers to the migration of workers with work-limiting disabilities through a system of economic disability benefits resulting in their ultimate placement into the Social Security Disability Insurance (SSDI) system (McMahon, et al., 2000). Specifically, this migration involves a “progression” from short-term disability (STD) to long-term disability (LTD) to SSDI income. As employers, government officials, and disability rights activists within the United States have become increasingly concerned about disability policy, as well as the individual and financial costs of having a disability, the PODB has received growing attention as a means for sustaining a valuable workforce (Frazer, et al., 2004).

This current project builds on a previous study that examined the PODB as it existed within 4,285 companies nationally, involving a total sample of 77,297 individuals with disabilities. The previous study documented and described the PODB phenomenon by examining the phases of STD, LTD, and SSDI compensation systems (McMahon, et al., 2000). Differences in migration are delineated on the basis of worker characteristics (gender, age, type of disability, region of residence) and type of employment setting (industry code).

This study explores the dynamics of the PODB phenomenon as it occurs within one specific industry, Healthcare. The Healthcare industry is currently the largest employer in the U.S., providing 13 million jobs annually (BLS, 2005). Additionally, it is an employment sector that is projected to grow more than any other industry over the next decade. Roughly 16 percent (3.5 million jobs), of all new wage and salaried jobs

will be in Health services, and 10 out of the 20 fastest growing occupations nationally are in this sector (BLS, 2005).

As demand grows for workers in the Healthcare industry, employers will face a limited supply of people to fill these positions. For instance, the nursing workforce of the next decade is forecasted to be driven by increasing demand and decreasing supply of registered nurses, second only to the aging of the workforce; the impact on Healthcare organizations is unprecedented (Buerhaus, 1999). Given these projected demands, it is vitally important that employers (particularly those in fields anticipating worker shortages) retain a healthy and productive workforce.

Background: Escalating Disability Costs

In the United States, the costs associated with disability and subsequent lost time or end of work are escalating. Annual disability costs can range from 8% to 15% of a company's payroll; moreover, these costs are expected to increase 37% over the next decade in response to the aging of the population (Salkever, Shinogle, & Purushothaman, 2000). Furthermore, the number of individuals being awarded long-term or permanent disability benefits has increased dramatically in recent years (Wheeler, 2004).

Increases in disability and disability related costs are not isolated to the private sector, as costs are increasing in the public disability system as well. During the past two decades, growth in the SSDI and SSI programs has been larger than anticipated (Wunderlich, Rice & Amado, 2002). For instance, in the ten-year period from 1987 through 1996, the number of working-age beneficiaries collecting SSDI grew from 2.8

million to 4.4 million. As a result, the cost of providing SSDI benefits to these recipients more than doubled from 18 billion in 1987, to 39.6 billion in 1996 (SSB, 1999).

Some of the growth in public sector disability programs can be attributed to cost shifting to recoup dollars lost in compensated benefits. Cost shifting is the process whereby insurers recover a portion of the claimant's benefit costs collected under LTD by actively assisting individuals in obtaining SSDI benefits (Hunt, Habeck, Owens, & Vandergoot, 1996; Schwartz, 1984; Frazer, McMahon, & Danczyk- Hawley, 2005). While this cost-shifting obviously increases the public disability program enrollment and expenses, it is also costly to the private sector employer. Butler, Gardner and Gardner (1998) documented that such cost-shifting results in increased benefits use and reduced overall productivity for the organization.

Once on SSDI, it is unlikely that an individual will leave the rolls for return to work. According to the General Accounting Office (GAO, 1996), less than 1 in 500 SSDI beneficiaries has departed the rolls in recent years because of return to work, and at least one-third of these individuals eventually returned to the SSDI rolls (Muller, 1992).

The costs of acquiring a disability can also be significant for the individual worker. The total lost income to the U.S. workforce in 1994 for disability related absence was 81.1 billion dollars, of which only 49.4 billion dollars or 60.9% was replaced by wage protection programs such as STD, LTD or Workers Compensation (WC) (McGuire, et al, 2002). The majority of lost income was related to nonoccupational conditions (i.e., those not covered by WC), with 55.2 billion dollars of lost wages, of which only 19.0 billion dollars (34.5%) was replaced through wage protection programs (Kerns, 1997,

McGuire, et al, 2002). Additionally, the indirect costs of having a disability can profoundly affect the individual's health and welfare. Epidemiological research emphasizes that prolonged absence from one's normal roles, including absence from the workplace, is detrimental to an individual's mental, physical and social well being (CMA, 1997).

As the economic and human costs of disability continue to increase, disability in the workplace has become a vital concern to business, government, and the individual worker (McGrail, et al., 2002). Disability is a phenomenon affecting all parties from the significant personal losses associated with the impairment and the resulting unemployment, to the growing economic costs from income maintenance programs and health related expenditures, to the costs resulting from lost productivity in the workplace. Further, due to workforce changes impacted by an aging population and a limited supply of workers to fill positions, companies are compelled to maintain the health and productivity of current workers and to accommodate workers who develop chronic impairments (McGrail, et al. 2002). It is no longer feasible to discard skilled workers who have acquired disabilities, since they cannot be easily replaced.

Healthcare Industry

As the largest industry in the U.S., the Healthcare sector and its workers comprise an extensive range of labor markets, employment settings, educational backgrounds, skill levels, and job functions (Wallis, 2001). The Health services work force – Healthcare professionals and others working in Healthcare facilities – represent more than 10.7% of all American workers (BLS, 2005). Among the occupational groups that compose the

Health industry, the largest is professionals and paraprofessionals, representing about 3 out of every 5 jobs (Wallis, 2001). The occupations with the most workers within this group include registered nurses, nursing aides, licensed practical and licensed vocational nurses, physicians, and home health aides (BLS, 2005). The next largest occupational group is in administrative support, followed by technicians and related support occupations. The executive, administrative, and managerial occupations accounted for only six percent of Health industry employment (BLS, 2005).

Throughout the 1990s, concern over escalating Healthcare costs transformed the composition of the Health services industry. Many hospitals attempted to contain these costs through downsizing and restructuring and, consequently, employment growth moved away from large hospitals and toward outpatient, home care, and long-term care settings (Wallis, 2001). Due in part to declining lengths of stay, increased outpatient treatment, and technological advancements that produce rapid assessment, treatment and discharge, hospitals experienced greater patient demand for services, and more chronically ill persons (AHA, 2002).

Yet, while patients today are requiring more services, hospitals are facing a shortage of staff to provide them. According to a recent American Hospital Survey of some 700 hospitals (AHA, 2002) nationwide, facilities are struggling to fill more than 168,000 job vacancies, including 126,000 nursing slots. Along with nursing vacancies, the survey identified pharmacist vacancy rates of 21%, radiology technician vacancy rates of 18 percent, and lab technician vacancy rates of 12%.

Contributing to workforce departure, jobs in the Healthcare industry are also among the most dangerous and debilitating in the U.S. workforce. In 2003, the annual nonfatal injury and illness rate for the Healthcare sector was 6.5 per 100 full-time workers as compared to respective rates of 6.8 in construction, and 3.3 in mining (BLS, 2004). Injury and illness can occur to Healthcare workers through a variety of sources:

Health workers are exposed to infectious diseases from needle sticks and other sources; to radiation from X-ray equipment and diagnostic and therapeutic radioisotopes; to chemicals from chemotherapy drugs, waste anesthetic gases, sterilizer gases such as ethylene oxide, laser plumes, and aerosolized drugs such as ribavirin and pentamidine; to ergonomic injury, especially back injury; to violence, particularly in psychiatric units; to shift-work hazards; and to reproductive hazards (Dotter, 1998, p. 1).

Exposure starts early in one's career. Students in a pediatric clinic clerkship had a 3-6 times higher risk of acute respiratory and gastrointestinal illness. Additionally, the rate of prescription type drug misuse and abuse in Health professionals is higher than the rate in the general population (Trinkiff, 1999).

More specifically, nurses, nurses' aides, and orderly staff are at a high risk of injury or illness due to the workplace. They account for a significant portion of all occupational back injuries, often the result of lifting heavy patients without assistance (Chester, 1996). Registered nursing is one of 12 jobs with the highest levels of occupational injury or illness requiring days away from work (Fact Sheet, 2004). While many of these injuries or illnesses would qualify under WC, a 2001 survey by the American Nurses Association (ANA) found that although 40% of their members had been injured on the job in the previous year, many had not reported the injuries.

As demand grows for workers in the Healthcare industry, employers are faced with a limited supply of workers to fill those positions. The U.S. Bureau of Labor Statistics (2005) projected that throughout our decade, registered nursing would be the third largest growth occupation in numbers of new positions needed; personal/home care aides and medical assistants would be the fastest growing occupation additions. This demand will not abate any time soon, as demographic pressures associated with an aging population are expected to both increase demand for Healthcare services and limit the pool of available workers (Buerkhaus, 1999). Therefore, efforts to retain a productive workforce are crucial.

The present study attempts to document the migration of workers within the health industry who develop a work limiting disability. It assesses their predictable and progressive movement through a system of economic disability benefits resulting in their ultimate placement into the SSA disability system. This phenomenon is referred to as the Progression of Disability Benefits (PODB).

Methodology

The purpose of this study is to retrospectively analyze a large scale database on PODB measures to evaluate the effects of predictor variables in differentiating employer industry, as well as determining the PODB phenomenon. PODB is used to describe the systematic movement of disability beneficiaries from STD to LTD to SSDI. The specific objectives of this study are to:

1. Explore the differences between the Healthcare industry and all other industries by claimant demographics (age, gender, and disability type) and

PODB (STD, LTD, and SSDI) experiences. Furthermore, the study assesses whether these demographics and the PODB experience can be used to predict employee industry (Healthcare vs. Other)?

2. Predict the PODB experiences of claimants employed within different sectors of the Healthcare Industry (General care, Sub acute, Acute, Medical/Dental laboratories, Home Healthcare, and Health & Allied services) when additional demographics (age, gender, disability type) are known.

Sample

The database was extracted from the UNUM/Provident Life Insurance Company on April 24, 1999. The sample includes an aggregate of 77,297 consecutive STD claims filed from January 1, 1994 to December 31, 1996 (the filing period). Every case of STD filed with UNUM during that three-year period was included in the extracted data set if the claimant was also insured for LTD by UNUM/Provident. From this group, 17,879 claims were pulled from claimants employed within a Healthcare environment (McMahon et al, 2000).

Several unique features of the data set may bear upon the interpretation or generalization of findings. The sample includes only claimants' insured for both STD and LTD by UNUM to minimize variations in data attributable to claims handling. In 1991, only 44% of American workers were insured for STD, and 25% were insured for LTD (National Academy of Social Insurance, 1996). Thus, the UNUM sample represents a minority of workers whose employers provided both forms of coverage in an

integrated manner. Most claimants in this sample work for larger employers (500 or more workers) that appear to offer integrated benefit programs, and are likely to have greater than average levels of accommodation and DM activity (McMahon, et al., 2000). Finally, no work-related injuries were included in this study; those injuries are addressed through a different insurance system.

For each complete case, the following data were available:

Claimant:

- Age (15 – 24, 25 – 34, 35 – 44, 45 – 54, 55 +)
- Gender (male, female)
- Disability Type (ICD-9 disability code, 11 categories:)
- PODB (claimants systematic movement from STD to LTD to SSDI)

Employer:

- SIC Code
 - Healthcare Industry vs. Other Industries
 - Healthcare Sector (6 categories)

Data Analysis

The research objectives and their respective research questions are addressed using Chi-squared Automatic Interaction (CHAID) Technique analysis. CHAID is a non-parametric analysis based on statistically recursive partitioning algorithms (O'Connell, et al., 2006). The CHAID Technique determines the relative importance of each of the independent (predictor) variables in explaining group membership in a categorical dependent (outcome) variable (Tabachnick & Fidell, (2004). This technique employs

two steps. In the first, the independent variables are stratified into alternative ordinal groupings to help ensure similar percentage distributions of the dependent variable among the new categories. Groups may be formed by any possible combination of the levels of an independent variable, or by placing cutpoints at any values of a continuous predictor. Second, this technique utilizes χ^2 significance levels to determine which independent variable explains the most variance in the dependent variable. This process is repeated for all significant predictor variables until significant χ^2 values are no longer obtained.

Dendograms (i.e., classification trees) are utilized to display the relative importance of statistically significant independent variables on the dependent variable. The hierarchical nature of the CHAID dendograms provide a visual depiction of criterion and predictor variable interactions that may not be otherwise observable or detected in traditional analytic procedures (Fong, et al., 2005). The variable at the highest level of the tree is determined to have the closest statistical association with the dependent variable (O'Connell, et al., 2006). While the CHAID technique has traditionally been used within business and marketing research, its use in rehabilitation and mental health studies has been increasing (Fong, et al., 2005; O'Connell, et al., 2006; Welte, et al., 2004).

For the current analyses, resulting groups were split until the following criteria were reached – tree depth was limited to three levels, no group smaller than 100 was split, no group smaller than 50 was formed, and an alpha level for the overall statistical tests conducted in this study was .05, corrected for the number of times the CHAID

analysis was performed using a Bonferroni correction. The SPSS Answer Tree 3.0 was the statistical software used for the CHAID analysis (SPSS, 2001).

Results

Research Question #1

Research Question #1 addresses claimants employed in a Healthcare environment (n=17,902; 23.16%) with those employed elsewhere (n=59,395; 76.84%). It asks, “Which of the following independent variables serve as the best predictor of whether a claimant is employed in the Healthcare environment versus the aggregate, Other industries (dependent variable):

1. Gender;
2. Age;
3. PODB;
4. Disability Type?”

Descriptive Statistics

Claimants’ demographic and industry information is provided in Table 1. Of the 77297 claimants in this study, 35.6% (n=27550) are male and 64.0% (n=49463) are female. The mean age for all claimants is 41.7 years (s.d. = 11.7). While the means for males and females are quite similar (mean=41.6, s.d.=12.3, and mean=41.8, s.d.=11.3, respectively). Furthermore, individuals with only STD benefits represent the largest group of health industry claimants (n=16,136; 90.14%). Individuals with LTD represent the next largest group (n=1,134; 6.33%). The smallest group includes individuals with SSDI (n=632; 3.53%).

Data Mining Results

The CHAID dendograms in Figures 1 and 2 illustrate the relative importance of statistically significant independent variables on predicting employment in a Healthcare environment or elsewhere. The dendogram was split into 2 tree diagrams to fit the page, Figure 1 displays the right split, Figure 2 shows the left split. Gain scores for the nodes are presented in Table 2. Gains are the proportion of total hits that occurs in each increment relative to the total number of hits in the tree. The gains summary displays which nodes have the highest and lowest proportions of the target category (Other Industry) within the node. For the analysis, the overall correct case classification is 77%. Gender served as the most significant predictor ($\chi^2 = 5360.38$, $df = 2$, $p < 0.001$). Almost a third of all female claimants ($n=15,567$; 31.47%) were employed in Healthcare environments, as compared to less than 10% of males ($n=2,274$; 8.25%). An odds ratio, used as a measure of effect size, of 5.10 is found, indicating that women with disabilities are approximately five times more likely to work in the healthcare industry as compared to men.

Node 1 - For females, the age category served as the next most significant predictor of employment in the Healthcare industry and elsewhere ($\chi^2 = 5360.38$, $df = 2$, $p < 0.001$), yielding three cluster of age groups: 1) 15-24; 2) 25-34, and; 3) 35 and over. For females aged 25-34 (node 6), the PODB served as the next most significant predictor of employment in the Healthcare industry ($\chi^2 = 48.33$, $df = 1$, $p < 0.001$), yielding two clusters of progression of disability categories: 1) STD, and; 2) LTD and SSDI. Women

of this age cluster working in the Healthcare industry were less likely to move on to advanced disability statuses (i.e., LTD, and SSDI).

Node 4 - For females 35 and over, the disability type served as the next most significant predictor for employment in the Healthcare industry ($\chi^2 = 66.50$, $df = 1$, $p < 0.001$). The disability categories were clustered into three groups: 1) Injury and Poisonings; Musculoskeletal conditions; and Nervous and Sensory conditions; 2) Digestive; Other *skin, congenital, perinatal, and other-ill defined conditions; Circulatory conditions; Genitourinary; and Infectious, Endocrine, and Blood disorders, and; 3) Mental health; Neoplasms; and Respiratory conditions. Results indicate that claimants over 35 years of age, working in the Healthcare industry are more likely to have disabilities related to an Injury or Poisoning, a Musculoskeletal, or Nervous and Sensory condition, than people in other industries.

Node 2 - For males, the age category also served as the next most significant predictor of employment in the Healthcare environment ($\chi^2 = 24.87$, $df = 2$, $p < 0.001$). The analysis yielded three clusters of age categories: 1) 15-24; 2) 25-34 and 45 - 54 and; 3) 55 and over. While men as a whole were overwhelmingly more likely to be employed outside of the Healthcare industry, there is a bimodal effect where proportionately, men aged 35 – 44 and 55 and older (node 7), were more likely to be employed within a Healthcare setting.

Research Question #2

Research Question #2 is limited to claimants belonging specifically to the Health industry (n=17902 of 77297, 23.2% of total claimants). It questions, “Which of the following independent variables serve as the best predictors of the PODB:

1. Gender;
2. Age;
3. Disability Type;
4. Healthcare Sector?”

To increase interpretability, the Healthcare industry was broken into 6 sectors according to SIC code. Table 3 documents the manner in which the codes were collapsed.

Similar to research question 1, the CHAID dendrogram was split into two figures. Figures 3 and 4 illustrate the relative importance of statistically significant independent variables on predicting the PODB. Figure 3 displays the right split, Figure 4 the left. In this analysis, the overall correct case classification is strong, classifying 91% of the cases accurately. Gain scores for the nodes are presented in Table 4, representing the highest and lowest proportions within the target category, SSDI.

Results indicate that disability type (as categorized by ICD-9 Coding) served as the most significant predictor of one’s progression on to advanced disability levels ($\chi^2 = 394.24$, $df = 4$, $p < 0.001$). The analysis grouped disability types into 5 sequentially numbered nodes: 1) Injury and Poisonings; and Respiratory conditions; 2) Digestive; and Genitourinary conditions; 3) Other * skin, congenital, perinatal, and other ill-defined

conditions; and Neoplasms; 4) Circulatory conditions, and; 5) Musculoskeletal; Mental health; Nervous and Sensory conditions; and Infectious, Endocrine, and Blood disorders.

Node 1 – For individuals with an Injury or Poisoning, or Respiratory condition, age served as the second most significant predictor for PODB ($\chi^2 = 61.06$, $df = 2$, $p < 0.001$). Three strata of age groups emerged: 1) 15-24; 2) 25-44, and; 3) 45 and over. For the first of these three age groups (node 6), the disability type category emerged as the next most significant predictor for PODB ($\chi^2 = 9.30$, $df = 1$, $p < 0.003$), yielding two clusters: 1) Injury and Poisoning, and; 2) Respiratory conditions. Generally, claimants with these types of conditions were less likely to move on to advanced disability levels (i.e., LTD or SSDI), however, age served to increase the likelihood. More specifically, the older you are, the more likely you are to move on to advanced disability levels.

Node 2 – For individuals reporting Digestive or Genitourinary conditions, age also served as the second most significant predictor ($\chi^2 = 8.30$, $df = 1$, $p < 0.04$). Two age groups were formed: 1) 15-34, and; 2) 35 and over. For the first of these two age groups (node 9), health services category served as the next most significant predictor for PODB ($\chi^2 = 10.85$, $df = 1$, $p < 0.04$). Results were similar to node 1 in that claimants within the node 2 cluster were less likely to progress from STD on to greater levels of disability benefits, but their likelihood did increase with age. Additionally, individuals working within Home Health, Health & Allied services, and General Care had greater movement on to LTD and SSDI.

Node 3 – For individuals with a condition falling within the categories of Other *skin, congenital, perinatal, or other-ill defined conditions; or Neoplasms, age served as

the second most significant predictor ($\chi^2 = 31.55$, $df = 2$, $p < 0.001$), yielding three age-related strata: 1) 15-34; 2) 35-54, and; 3) 55 and over. For the first of these (node 11), gender served as the next most significant predictor ($\chi^2 = 6.25$, $df = 1$, $p < 0.04$). For the second of the three age groupings (35 – 54), health services category served as the next most significant predictor ($\chi^2 = 12.5$, $df = 1$, $p < 0.007$). These two health services categories were grouped as: 1) Acute and Subacute, and; 2) Home Health, Health and Allied services, and General care. While movement on to advanced disability levels for this cluster was below that of the Healthcare industry as a whole, individuals aged 45 – 54 and working within Home Health, Health and Allied services, and General care settings did have greater than expected progression to advanced disability statuses. For individuals aged 15 – 44, gender was the next most significant predictor ($\chi^2 = 6.25$, $df = 1$, $p < 0.03$), with men moving on to greater levels of disability benefits.

Node 4 – For individuals reporting a Circulatory condition, age served as the second most significant predictor ($\chi^2 = 23.82$, $df = 2$, $p < 0.001$), yielding an age-related strata of: 1) 15-34; 2) 35-54; and; 3) 55 and over. Claimants with Circulatory conditions had the greatest progression on to LTD and SSDI, representing 23% of claimants within this cluster over the age of 55.

Node 5 – For individuals reporting a Musculoskeletal; Mental health; Nervous and Sensory condition; or an Infectious, Endocrine, and Blood disorder, health services categories served as the second most significant predictor of PODB ($\chi^2 = 93.86$, $df = 1$, $p < 0.001$). The health services categories were split into two nodes: 1) Acute, Subacute, Medical/dental labs (node 17), and; 2) Home health, Health and Allied Services, and

General care (node 18). For nodes 17, age category served as the next most significant predictor ($\chi^2 = 74.13$, $df = 3$, $p < 0.001$), and the same was true for node 18 ($\chi^2 = 22.22$, $df = 2$, $p < 0.000$). Age categories for node 17 were stratified in the following manner: 1) 15-24; 2) 25-34; 3) 35-44, and; 4) 45 and over. Only three age categories were created for node 18: 1) 15-24; 2) 25-34, 45-54 and; 3) 55 and over. Claimants within node 5 had greater than expected movement on to advanced disability levels. As with the previous nodes, the older the claimant is the more likely they are to collect LTD and SSDI. Yet again, we find the greatest progression occurring with individuals working within Home Health, Health and Allied services and General care settings.

Discussion

The current study compared disability claimants working in the Healthcare industry with claimants working in other industries. It further assessed the characteristics (age, gender, disability type) of those claimants in the Healthcare industry to predict how they moved through different disability benefit statuses (STD, LTD, SSDI). Overall, workers in Healthcare represent 23.2% ($n=17,902$ of $59,395$) of total disability claims recorded in the data set. As evidenced by the CHAID analysis, gender is a significant predictor of claimants' employment in the Healthcare industry versus elsewhere. Women overwhelmingly make up the majority of claimants (87.3 %) in the Health Industry versus 52.3% in other Industries. For both males and females, age was the second most important predictor of claimants' employment in the Healthcare industry and elsewhere. Claimants in Healthcare are on average slightly older at 42.7 years versus 41.4 years.

Regarding disability type, overall Circulatory conditions accounted for only 6.2% of claims in the health industries versus 8.1% in other industries. Since the Healthcare industry has a greater proportion of women represented, it stands to reason that they would have lower rates of disability related to Circulatory conditions as cardiovascular disease has traditionally been under diagnosed in women and also is more prevalent in females post menopause (Judelson, 1999). Another CHAID finding of interests relates to female claimants over the age of 35 with an Injury or Poisoning, a Musculoskeletal, or Nervous and Sensory condition, who were more likely to be employed within the Healthcare industry. These conditions may be caused or exacerbated by the type of work conducted within Healthcare settings. For instance, Musculoskeletal conditions may be a function of the lifting requirements in many occupations such as nursing that are linked to back injuries (Fact Sheet, 2004; Chester, 1996).

Concerning PO DB several descriptive findings were noteworthy. Although there were significantly more female claimants in the Healthcare industry, males were more likely to move on to advanced disability statuses (LTD and SSDI). Additionally, when looking at the age categories, individuals in the 45-54 and the 55 and over category were more likely to progress onto SSDI. More than half of claimants (52.9%) moved on to advanced disability status after acquiring a Musculoskeletal condition, while over a quarter were likely to move on after reporting a Circulatory condition (25.1%). Both Circulatory and Musculoskeletal conditions are the most common set of conditions associated with the award of SSDI benefits (SSA, 2001). Conditions related to an Injury or Poisoning accounted for 24.5% of the claims, and Mental illness another 19.8%.

Overall, when compared with other industries as a whole, Healthcare workers were less likely to move on to an advanced disability status (9.8% versus 12%).

For the second study, differences in PODB are also observed according to the particular Healthcare setting claimants work within. Claimants that had moved on to advanced disability statuses (i.e., LTD and SSDI) were more likely to be employed within a General Care (21.8%), Health & Allied Services (18.4%), and finally Home Health Care (17.6%) setting. Claimants working within a Subacute setting (7.7%), Medical or Dental laboratory (8.3%) or Acute setting (9%) have the lowest progression to advanced disability statuses. The data do not shed light on whether the differences in PODB are related to factors within the type of employment setting that may impede return to work, the nature of the job, or the severity of the disability.

Overall, results for the CHAID analysis revealed that disability type is the most significant predictor of the PODB for Healthcare workers. This finding is expected, as the data demonstrates, different conditions may be more severe and work limiting than others.

Second, age is the second most significant predictor of PODB for 4 of the 5 categories of disabilities. This is not surprising, because one's age can impact the severity of a disability. For instance, a condition can become more disabling with time (e.g., diabetes, multiple sclerosis) or may be more likely to occur later in life (e.g., cardiovascular disease). But this finding may also be a function of employer practices that may less aggressively attempt or overlook, returning an older employee back to work. However, for the 5th group (node 5), health services was the next most significant

predictor of the PODB (followed by age as the 3rd most significant predictor). Node five consists of Musculoskeletal conditions; Nervous and Sensory conditions; and Infectious, Endocrine, and Blood disorders. These types of disabilities may be associated with, or complicated by, workplace hazards that occur within the Healthcare industry such as, back injuries when moving patients; exposure to radiation, gases, and chemicals; shocks from electrical equipment; accidental needle sticks; and latex allergies (BLS, 2006). Thus, the workplace may be a contributing factor to the type of condition, while age impacts the severity and return to work potential.

Conclusion

This study assessed the movement of employees with disability claims within the Healthcare industry as they progressed through a system of economic disability benefits (i.e., STD, LTD, SSDI). It further explored whether employer industry and this migration could be predicted when additional claimant and employer factors were known (i.e., worker age, gender, disability type, PODB, and SIC code). Findings support the basis of this study in that these variables can differentiate employer industry and influence the PODB phenomenon. Concerning the Healthcare industry as a whole, these analyses demonstrate a difference in how employees progress through different disability systems as examined by stated characteristics and how these characteristics can be used to predict the PODB experience.

The findings are preliminary, and additional studies are necessary to better understand how job characteristics, specific work environment, and employer policies and practices may interact to impact the PODB. For instance, significant differences

were found between Healthcare sectors regarding the percentage of claimants that migrated to advanced disability levels. However, what is not known is the claimant's specific job title and job functions and how those variables may influence PODB. For instance, a job's physical work demands have an impact on workplace accommodation and return to work. Individuals with fewer physical work demands are better able to return to work (Wunderlich, et al., 2002). Additionally, further analysis may reveal that workplace factors linked to adverse health consequences, such as night shift work (Demoss, et al., 2004), may have an impact on the PODB.

Across all conditions, age increased a claimant's movement onto advanced disability levels. While this may simply be a result of a condition's severity increasing with age, it raises questions of whether this may be a function of employers' practices where older workers may be overlooked in regards to aggressive return to work interventions. As our population ages (and thus become more disabled), many workers may need to remain in the workforce longer. Therefore, we need to address ways to retain and accommodate experienced and valuable workers when disability ensues.

In summary, the costs of disability and the growing rate of participation in disability benefit programs are now widely recognized as threatening factors to both public and private sector budgets (Reno, Mashow, & Gradison, 1997). It has become clear that the action and inaction of employers, insurers and providers have important implications for the public disability program (Stapleton, 1998). There is a definite need to develop interventions that promote work retention, and strategies that inhibit the transfer of individuals with enduring work disabilities to the social security (SSA) system. As a

result of this trend, the nation may face a Healthcare shortage of different dimensions from shortages of the past. Recent legislative, industry and organizational efforts to address these challenges could help to reverse this trend along with strategies to improve wages, job satisfaction, working environments, and recruitment and retention efforts.

While this study contributes to our understanding of the PODB, further study should identify interventions that can delay or prevent the PODB from occurring in the first place. Tailoring interventions to the variables that are known to affect PODB is what is imperative.

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Table 1. Claimant Demographics by Disability Category

Variable	Short Term Disability			Long Term Disability			Social Security Disability			Analysis		
	N	N with	%	N	N with	%	N	N with	%	χ^2	df	p
		Variable			Variable			Variable				
Age												
								307.23	8	<0.001		
15-24	16,094	658	4.1%	1,131	20	1.8%	632	4	0.63%			
25-34	16,094	3,469	21.6%	1,131	170	15.0%	632	49	7.8%			
35-44	16,094	5,313	33.0%	1,131	372	32.9%	632	149	23.6%			
45-54	16,094	4,169	25.9%	1,131	370	32.7%	632	203	32.1%			
55 & Over	16,094	2,485	15.4%	1,131	199	17.6%	632	227	35.9%			
Gender												
								38.02	2	<0.001		
Male	2,274	1,976	86.9%	2,274	174	7.7%	2,274	124	5.5%			
Female	15,567	14,109	90.6%	15,567	954	6.1%	15,567	504	3.2%			
ICD9 Disabilities												
								479.53	20	<0.001		
Infectious, endocrine												
Blood	16,136	549	3.4%	1,134	45	4.0%	632	40	6.3%			
Neoplasms	16,136	1,365	8.5%	1,134	95	8.4%	632	42	6.6%			
Mental	16,136	1,116	6.9%	1,134	120	10.6%	632	58	9.2%			
Nervous/sense	16,136	768	4.8%	1,134	74	6.5%	632	57	9.0%			
Circulatory	16,136	915	5.7%	1,134	85	7.5%	632	111	17.6%			
Respiratory	16,136	1,097	6.8%	1,134	36	3.2%	632	37	5.9%			
Digestive	16,136	1,502	9.3%	1,134	52	4.6%	632	21	3.3%			
Genitourinary	16,136	1,839	11.4%	1,134	35	3.1%	632	26	4.1%			
Other	16,136	1,061	6.6%	1,134	74	6.5%	632	39	6.2%			
Musculoskeletal	16,136	2,994	18.6%	1,134	326	28.7%	632	153	24.2%			
Injury, Poisoning	16,136	2,930	18.2%	1,134	192	16.9%	632	48	7.6%			
Healthcare Sector												
								21.43	10	<0.001		
General Care	16,136	492	3.0%	1,134	95	8.4%	632	42	6.6%			
Subacute	16,136	1,329	8.2%	1,134	77	6.8%	632	34	5.4%			
Acute	16,136	13,426	83.2%	1,134	836	73.7%	632	491	77.7%			
Medical/Dental	16,136	33	0.2%	1,134	3	0.3%	632	0	0.0%			
Homehealth	16,136	399	2.5%	1,134	62	5.5%	632	23	3.6%			
Health & allied	16,136	457	2.8%	1,134	61	5.4%	632	42	6.6%			

Table 2: Gain summary scores for predicting employer industry, Healthcare or Other.

Gain Summary											
Target variable: Health Industry vs. Other Industry							Target category: Other Industry				
Node-by-Node							Cumulative Statistics				
Node	Node: N	Node: %	Gain: N	Gain (%)	Resp: %	Index (%)	Node: N	Node: %	Gain: N	Gain (%)	Resp: %
9	2021	2.6	1897	3.2	93.9	122.2	2021	2.6	1897	3.2	93.9
8	12776	16.5	11776	19.8	92.2	120	14797	19.1	13673	23	92.4
7	12753	16.5	11603	19.5	91	118.4	27550	35.6	25276	42.6	91.7
14	958	1.2	784	1.3	81.8	106.5	28508	36.9	26060	43.9	91.4
3	284	0.4	223	0.4	78.5	102.2	28792	37.2	26283	44.3	91.3
5	2410	3.1	1851	3.1	76.8	100	31202	40.4	28134	47.4	90.2
13	10522	13.6	7505	12.6	71.3	92.8	41724	54	35639	60	85.4
12	9058	11.7	6286	10.6	69.4	90.3	50782	65.7	41925	70.6	82.6
11	12703	16.4	8576	14.4	67.5	87.9	63485	82.1	50501	85	79.5
10	13812	17.9	8894	15	64.4	83.8	77297	100	59395	100	76.8

* In versions prior to AnswerTree 3.0 the Gains column was known as Responses and vice versa.

Table 3: Healthcare Industry Sectors

Healthcare Sectors	SIC Code	SIC Title
General Care	801-804	Offices & Clinics
Sub Acute	805	Nursing & Personal Care Facilities
Acute	806	Hospitals
Medical/Dental Labs	807	Medical & Dental Labs
Home Healthcare	808	Home Healthcare Services
Health & Allied Services	809	Kidney Dialysis Centers & Specialty Outpatient and Allied Health Services not elsewhere classified

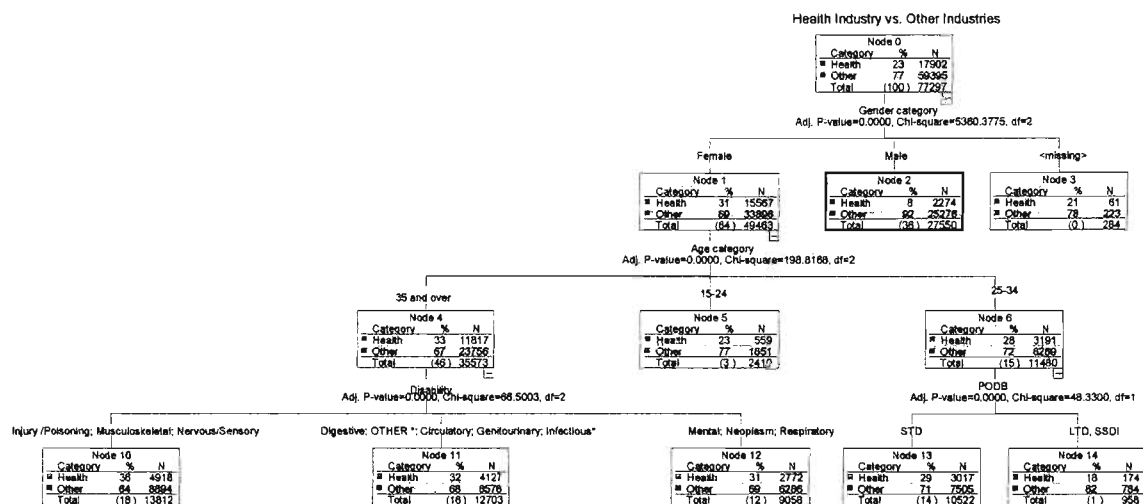
Note. SIC refers to Standard Industry Classification code.

Table 4: Gain summary scores for predicting the PO DB within the Healthcare Industry.

Gain Summary											
Target variable: PO DB							Target category: SSDI				
Node-by-Node							Cumulative Statistics				
Node	Node: N	Node: %	Gain: N	Gain: (%)	Resp: %	Index (%)	Node: N	Node: %	Gain: N	Gain: (%)	Resp: %
33	83	0.5	17	2.7	20.5	580.2	83	0.5	17	2.7	20.5
16	417	2.3	61	9.7	14.6	414.4	500	2.8	78	12.3	15.6
32	346	1.9	39	6.2	11.3	319.3	846	4.7	117	18.5	13.8
15	365	2	34	5.4	9.3	263.9	1211	6.8	151	23.9	12.5
13	454	2.5	35	5.5	7.7	218.4	1665	9.3	186	29.4	11.2
30	2501	14	161	25.5	6.4	182.3	4166	23.3	347	54.9	8.3
31	154	0.9	9	1.4	5.8	165.5	4320	24.1	356	56.3	8.2
26	82	0.5	4	0.6	4.9	138.2	4402	24.6	360	57	8.2
14	329	1.8	16	2.5	4.9	137.8	4731	26.4	376	59.5	7.9
23	131	0.7	6	0.9	4.6	129.7	4862	27.2	382	60.4	7.9
8	1679	9.4	58	9.2	3.5	97.9	6541	36.5	440	69.6	6.7
29	1815	10.1	59	9.3	3.3	92.1	8356	46.7	499	79	6
22	105	0.6	3	0.5	2.9	80.9	8461	47.3	502	79.4	5.9
25	716	4	16	2.5	2.2	63.3	9177	51.3	518	82	5.6
28	1206	6.7	22	3.5	1.8	51.7	10383	58	540	85.4	5.2
10	2519	14.1	43	6.8	1.7	48.4	12902	72.1	583	92.2	4.5
24	1293	7.2	20	3.2	1.5	43.8	14195	79.3	603	95.4	4.2
7	1396	7.8	21	3.3	1.5	42.6	15591	87.1	624	98.7	4
20	319	1.8	2	0.3	0.6	17.8	15910	88.9	626	99.1	3.9
27	195	1.1	1	0.2	0.5	14.5	16105	90	627	99.2	3.9
19	946	5.3	4	0.6	0.4	12	17051	95.2	631	99.8	3.7
21	851	4.8	1	0.2	0.1	3.3	17902	100	632	100	3.5

* In versions prior to AnswerTree 3.0 the Gains column was known as Responses and vice versa.

Figure 1. CHAID Diagram of the Split Halves of Healthcare versus Other Employment, Female Branch



Note. PODB refers to the progression of disability, STD to short-term disability, LTD to long-term disability, and SSDI refers to Social Security Disability Insurance. Other* refers to the Disability category of Other*skin, congenital, perinatal, or other-ill defined conditions; and, Infectious* refers to the category Infectious, Endocrine, and Blood disorders.

Figure 2. CHAID Diagram of the Split Halves of Healthcare versus Other Employment, Male Branch

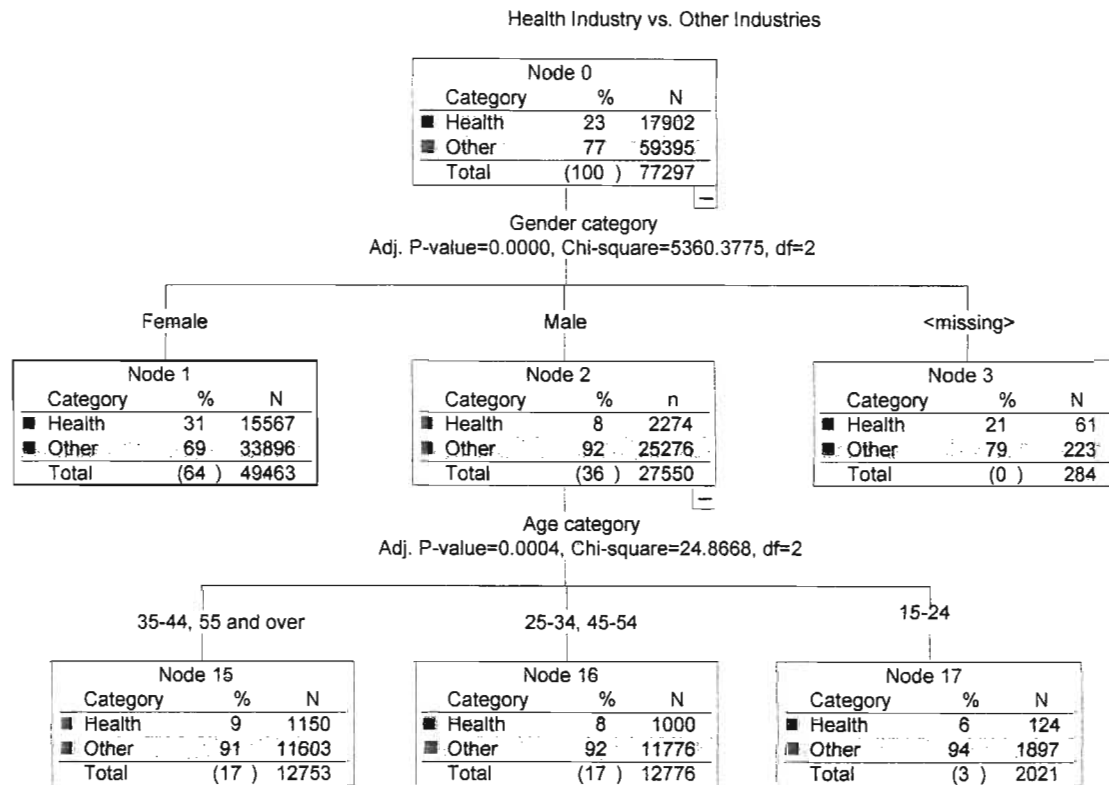
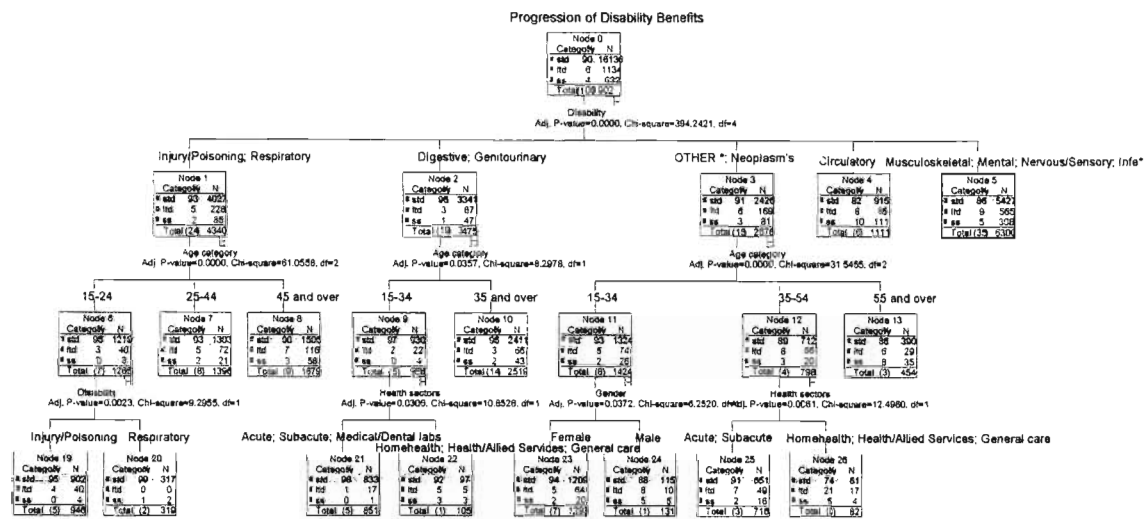
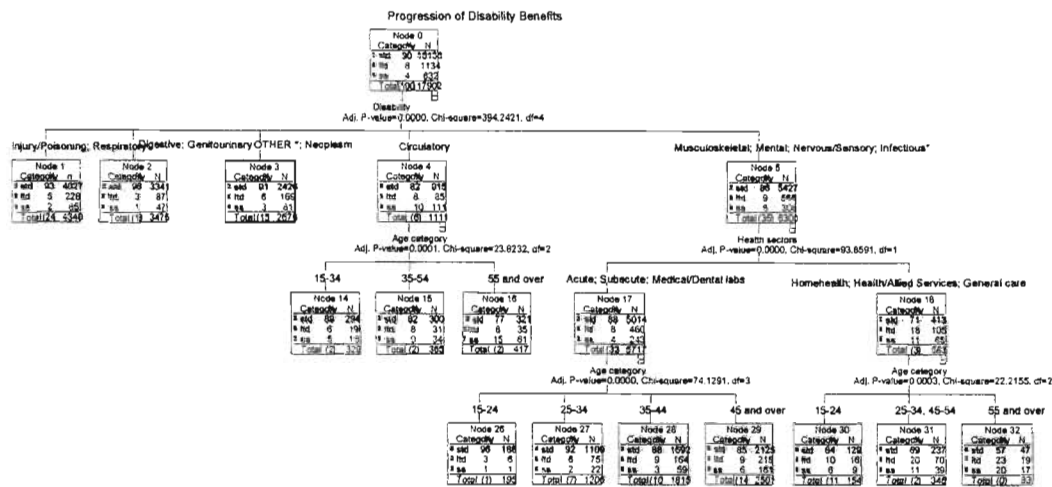


Figure 3: Split Half View of the PODB within the Healthcare Industry – Right Branch



Note. PODB refers to the progression of disability, STD to short-term disability, LTD to long-term disability, and SSDI refers to Social Security Disability Insurance. Other* refers to the Disability category of Other *skin, congenital, perinatal, or other-ill defined conditions; and, Inf* refers to the category Infectious, Endocrine, and Blood disorders.

Figure 4: Split Half View of the PODB within the Healthcare Industry – Left Branch



CHAPTER V

CONCLUSION

The costs of disability and the increasing rate of enrollment in disability benefit programs are realized to be threatening factors to both private industry and government budgets (Reno, Mashow, & Gradison, 1997). Costs cannot continue to grow at an unprecedented rate without ultimately decreasing benefit program features, and/ or making such programs unaffordable to the average employer and thus, the individual worker. In the private sector, employers have shifted some costs to employees through higher employee out-of-pocket costs and reduced coverage and choice (Acevedo, Khan, & MacDonald, 2005; Lustig et al., 2003). While in the public sector, the Government Accountability Office (GAO) presents a grim fiscal forecast

GAO's most recent long-term budget simulations continue to show that demographic trends and rising health care spending will drive escalating federal deficits and debt, absent meaningful entitlement reforms or other significant tax or spending actions. ...while additional economic growth will help ease our burden, the potential fiscal gap is too great to grow our way out of the problem (GAO, 2003).

There is a significant need to study interventions that promote work retention, and strategies that reduce the transfer of individuals with enduring work disabilities to the social security (SSA) system. Since the activities of employers, insurers and providers have important implications for the public disability program (Stapleton, 1998), this is a

likely place to start implementing methods to avert movement along the disability benefits continuum.

Summarizing the PODB Articles

The progression of disability benefits (PODB) phenomenon is a method to access how claimants with disabilities move through a system of economic benefits that eventually places them into the Social Security Disability Insurance (SSDI) system. More specifically, it tracks how claimants move from short-term disability (STD) to long-term disability (LTD) to SSDI when additional variables about the claimant or the employer are known. It is the authors intent that through this information, interventions can be developed that will avert the PODB and return productive individuals back to work. Three articles were completed that each took a unique perspective in demonstrating ways in which the PODB measure can be used:

1. In assessing the PODB movement within specific types of conditions (i.e., neurological);
2. Evaluating employer integrated disability management (IDM) practices and how they may influence the PODB; and,
3. Predicting differences in employer industries, and the PODB experiences within an industry, through claimant demographic and employer variables.

Regarding the article: *A Barrier to Independence for Persons with Neurological Impairments* (Danczyk-Hawley, McMahon, & Reid, 2001), in general, these data suggest that individuals with neurological impairments are more likely to move on to advanced

levels of disability benefits than other categories of disabilities. Indeed, 17% of claimants with neurological disabilities progressed to advanced disability benefit levels (LTD and SSDI) compared to 11.5% of the general disability population. Advancement was further found to be related to type of neurological disability category (claimants with Cerebrovascular conditions being the most likely to move on to advanced disability benefits), and region of claimant residence. Claimants also tended to be younger, and were more likely to be male.

Why individuals with neurological impairments had a greater rate of PODB is not known? It is probable that this could be a function of the severity of the condition as challenges of vocationally restoring persons with severe neurological impairments to competitive employment have been well-documented (McMahon and Shaw, 1989; Brooks, McKinlay, & Symington, 1987; Prigatano, Klonoff, & O'Brien, 1994). Future studies should further analyze the PODB among these workers while accounting for additional worker and workplace factors that may influence the migration

The second article, *Progression of Disability Benefits as a Measure of Disability Management Program Effectiveness: Implications for Future Research* (Danczyk-Hawley, McMahon, & Flynn, 2002), explores the relationship between employer IDM practices and PODB. It proposes that while the efficacy of IDM programs has been measured by the bottom line, that PODB can be used as an additional tool to assess effectiveness of DM programs (not just for the private sector organization, but for the resulting savings accrued in the public Social Security Administration (SSA) system as well). As shown in the results, employers with greater levels of IDM had reduced

movement of claimants on to advanced disability benefit levels. Conversely, employers with low DM practices had greater movement of their employees onto advanced disability statuses. Most notable, however, is the substantially greater movement of claimants onto LTD (9.9% vs. 4.4%) and then SSDI (54.2% vs. 51.6%). Thus, employers with fewer established DM practices had twice the STD to LTD progression rate. These differences create very considerable cost and productivity advantages for those employers with high levels of established DM practices.

Accordingly, the PODB model may provide a means for evaluating the ability of DM programs to change the disability experience rating for employers. As shown in the results, employers with greater levels of IDM had reduced movement of claimants on to advanced disability benefit levels. A possible explanation for the disparity in the prevalence of claimants moving from STD to LTD is that in a DM structure, early intervention typically occurs within the first six months an individual is collecting benefits (i.e., the STD period). Conversely, there has been a lack of success in return to work for individuals in LTD because they have more severe injuries and illnesses. However, we have yet to fully understand the degree to which IDM practices affect PODB. This preliminary study provides a basis for future research.

The third and final article: *Employees' Progression through Disability Benefits within the Healthcare Industry* (Danczyk-Hawley, Forthcoming), assesses how client and employer demographics, could be used to predict claimant industry as well as PODB performance within an industry. Results indicate that female claimants over 35 years of age, working in the Healthcare industry are more likely to have disabilities related to an

Injury or Poisoning, a Musculoskeletal, or Nervous and Sensory condition, than people in other industries. However men, working in other industries were more likely to move on to advanced disability benefits (i.e., LTD and SSDI). .

When isolating only the Healthcare industry for study, it was found that the most significant predictor of PODB was the disability type, with Cardiovascular conditions having the highest rate of progression. Next, for all but one category of disability, age was the next predictor of PODB. Generally, despite the condition, the older the claimant was, the more likely they were to leave the workforce and progress on to advanced disability levels. What is not known is if this is a function of the severity of the condition (i.e., conditions become more severe as we age), or if it is a feature of the work environment or insurance system that may push older workers on to SSDI.

For Healthcare workers with Musculoskeletal conditions; Nervous and Sensory conditions; and Infectious, Endocrine, and Blood disorders, the sector they worked within was the next most significant predictor of the PODB (followed by age as the 3rd most significant predictor). Individuals working within Home Health, Health and Allied Services, and General Care had a significantly greater advancement on to LTD and SSDI. How the workplace may contribute to the type of disabling condition is a question for future study.

Directions for Future Research

While these findings contribute to our understanding of factors that influence the PODB, additional research is necessary to better understand how job characteristics, specific work environment, employer policies and practices, and disability etiology and

severity may interact and impact upon it. Through the understanding of variables that are known to affect the PODB, interventions can be developed to avert it.

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