Integrated Disability Management in Occupational Health: 
Developing a Model Program 

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Approved by: 

Advisor 

Reader
Abstract

The concept of integrated disability management is an extension of traditional occupational health case management programs that focus solely on management of acute occupational injuries and illnesses. Integrated disability management extends case management to all types of employee absences – short-term disability, sporadic absence, and long-term disability to minimize worker morbidity resulting in healthier, more productive employees, and benefit plan cost savings to employers. A comprehensive program encompasses chronic disease management and prevention through health promotion programming.

The purpose of this paper is to develop a model for implementing an integrated disability management program using common themes of successful programs and data from a mid-sized corporation.
Acknowledgements

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Chapter I

INTRODUCTION

Occupational health professionals readily acknowledge that occupational injuries and illnesses cause significant worker morbidity and are costly to employers. For example, approximately 3.6 million occupational injuries and illnesses were treated in emergency departments alone in 1998 (Centers for Disease Control and Prevention [CDC], 1991). The case management of work-related disabilities is one of the most effective methods of returning injured workers to work and is well established in the occupational health nurse’s scope of practice (Rogers, 1994). Authors (e.g. Mullahy, 1998; Powell & Ignatavicius, 2000) posit that case management decreases both direct and indirect costs of disability. The morbidity, social and healthcare costs, and lost productivity related to nonoccupational disability, however, affect employee well being and the bottom line of U.S. businesses to an even greater extent than occupational disability (DiBenedetto, 1998).

Chronic, non-work related disabling conditions cause major limitations in activity for more than one of every ten Americans, or 25 million people. The prolonged course of illness and disability from such chronic diseases as diabetes and arthritis results in extended pain and suffering and decreased quality of life for those affected. Medical care of people with chronic diseases accounts for more than 75% of the nation’s $1 trillion in medical costs. The direct and indirect costs of diabetes alone are nearly $100 billion a year. Arthritis results in estimated medical care costs of $15 billion and estimated total costs (including lost productivity) of about $65 billion. In 2001, approximately $300 billion was spent on all cardiovascular disease (National Center for Chronic Disease Prevention and Health Promotion, CDC, 2001).
Integrated Disability Management

Social consequences of injuries and illnesses include impairment of domestic and vocational function, and activities of daily life. Psychological and behavioral responses, for example, stress, rehabilitation and return to work needs, and equity and social justice issues are also recognized sequelae (Dembe, 2001).

A William M. Mercer survey (2001) determined that absenteeism costs U.S. employers more than 20% of payroll every year. Utilization of health care and short-term disability benefits as well as the cost of sporadic absences is highest in companies that do not view case management and employee well-being as an integral part of strategic planning for optimal business outcomes (Pratt, 2001; Watson Wyatt, 2002). Mullahy says that lost productivity due to disabling conditions may add up to 15% of payroll (1998). Further, because “...each employer bears this cost and must add the cost to the price of its goods and services” (Menzel, 1998, p. 1-2), there is an increased burden to society due to higher cost of goods and services.

Occupational health nurses are positioned to develop and manage programs that integrate occupational and nonoccupational disability management in order to address both workers’ and business’ needs (Powell & Ignatavicius, 2001). Thus, worksite programs for integrated disability management (IDM) should be investigated by occupational health professionals and employers alike.

Gaps in the Literature

The review of disability management literature shows a dearth of research about the cost-effectiveness of nursing case management interventions, the human, societal and economic impact of injuries and illnesses, and practice models for IDM. Demonstrating value-added is essential to occupational health nursing practice. This is especially important during economically depressed periods when occupational health nursing services may be viewed as superfluous.
As evidenced in an occupational health nurse survey conducted to identify research priorities, the effectiveness of case management approaches in occupational illness and injury was among the 12 priorities identified for further research (www.aaohn.org/practice/priorities.cfm). Stone, Curran, and Bakken (2002) concur that “…nurses, as well as other clinicians, need evidence about the cost-effectiveness of care and how to measure economic value of interventions” (p. 277).

The economic burden of occupational injury and illness is estimated at $171 billion (National Institute for Occupational Safety and Health [NIOSH], 2001). However, research in many areas such as risk factors for occupational injuries and illnesses, prevention and control strategies, and cost implications is limited. To address the problem, the National Occupational Research Agenda (NORA) was established in 1996 through partnerships between NIOSH and about 500 public and private stakeholders to provide a framework for occupational safety and health research in the next decade and to focus research in the areas most likely to reduce the huge toll of workplace injury and illness (Rogers, 2002b). The NORA’s purpose is to increase activities and resources in 21 priority areas that are divided into three main categories: disease and injury, work environment and work force, and research tools and approaches. The research priorities are listed in Table 1.1. Research on the social and economic consequences of occupational injury and illness is indicated (Rogers, 2002b) and is particularly germane to documenting the need for IDM.

The economic impact of occupational injury and illness for workers and their families is also much understudied. Issues that should be investigated
Table 1.1

The National Occupational Research Agenda

<table>
<thead>
<tr>
<th>Category</th>
<th>Priority Research Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease and injury</td>
<td>Allergic and irritant dermatitis</td>
</tr>
<tr>
<td></td>
<td>Asthma and chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td></td>
<td>Fertility and pregnancy abnormalities</td>
</tr>
<tr>
<td></td>
<td>Hearing loss</td>
</tr>
<tr>
<td></td>
<td>Infectious diseases</td>
</tr>
<tr>
<td></td>
<td>Low back disorders</td>
</tr>
<tr>
<td></td>
<td>Musculoskeletal disorders of the upper extremities</td>
</tr>
<tr>
<td></td>
<td>Traumatic injuries</td>
</tr>
<tr>
<td>Work environment</td>
<td>Emerging technologies</td>
</tr>
<tr>
<td>and workforce</td>
<td>Indoor environment</td>
</tr>
<tr>
<td></td>
<td>Mixed exposures</td>
</tr>
<tr>
<td></td>
<td>Organization of work</td>
</tr>
<tr>
<td></td>
<td>Special populations at risk</td>
</tr>
<tr>
<td>Research tools and</td>
<td>Cancer research methods</td>
</tr>
<tr>
<td>approaches</td>
<td>Control technology and personal protective equipment</td>
</tr>
<tr>
<td></td>
<td>exposure assessment methods</td>
</tr>
<tr>
<td></td>
<td>Health services research</td>
</tr>
<tr>
<td></td>
<td>Intervention effectiveness research</td>
</tr>
<tr>
<td></td>
<td>Risk assessment methods</td>
</tr>
<tr>
<td></td>
<td>Social and economic consequences of workplace illness</td>
</tr>
<tr>
<td></td>
<td>and injury</td>
</tr>
<tr>
<td></td>
<td>Surveillance research methods</td>
</tr>
</tbody>
</table>

Source: [www.cdc.gov/niosh/nora.html](http://www.cdc.gov/niosh/nora.html), 2003
include earning losses for the injured workers and the spouse caregiver, uninsured health care costs, stress-related impacts of disability such as interpersonal conflict, and impaired ability to provide child or elder family care (Weil, 1999). Weil emphasizes in his paper that examination of the economics of occupational injury and illness can offer a perspective for investigation and create incentives in systems, policies, and relationships among organizations and individuals that affect the safety and health of workers--especially through prevention and the treatment and support of injured workers and their families. The valuation of economic impacts from different perspectives may also be useful in balancing commitment to efficiency and aggregate social welfare while ensuring equity and a minimum level of social welfare among individuals and societal groups.

Economic evaluation results would improve surveillance and recognition of occupational safety and health costs and also aid in identifying cost shifting between workers compensation and group health plans. This is significant because among some firms, a recent decline in workers compensation costs is being accompanied by a commensurate increase in group health costs. Research on the long-term medical and quality of life costs of chronic occupational illnesses is also indicated (Weil).

The same functional, economic, and social outcomes are associated with nonoccupational illness and injury. It follows that measures for evaluation and management of nonoccupational disability should be examined. Boden, Biddle and Speiler (2001) cite the need for the development of a conceptual framework or model to describe the economic and social consequences and the human impact of all disability such as short term or long term disability, episodic disability, and the like. Models that outline the implementation of IDM programs in the workplace to guide occupational health nursing practice in caring for all ill and
injured workers are indicated accompanied by additional research that
demonstrates the effectiveness and strategic importance of IDM.

Purpose

The purpose of this paper is to identify common themes of successful IDM
programs and to develop a model for implementing a nurse managed IDM
program using data from a mid-sized private corporation.
Chapter II

REVIEW OF THE LITERATURE

Definition of Disability

The legal definition of disability is the "incapacity for the full enjoyment of ordinary legal rights" (Mullahy, 1998, p. 563). In the context of the workplace, disability is more precisely explained as physical or mental impairment that substantially limits one or more of the major life activities. A physical or mental impairment is a physiological disorder, disfigurement, or anatomical loss affecting one or more body systems; or, any mental or psychological disorder such as mental retardation, organic brain syndrome, emotional or mental illness, and specific learning disabilities (Americans With Disabilities Act, 1990). Workplace disabilities are categorized as occupational, nonoccupational, and episodic. Occupational disabilities are those that arise from illness or injury that occurs as a result of performance of the employee’s job duties. Nonoccupational disabilities are characterized as chronic or acute injury or disease and occur as a result of aging, risky lifestyle behaviors, heredity, trauma and the like. Episodic disability is associated with absence from the workplace due to relatively minor episodes of illness or injury such as colds and flu or minor body aches and typically represents the shortest disability durations. These categories of workplace disabilities are discussed within the context of the associated morbidity and the costs to individuals, the nation, and employers.

Types of Disability Costs

There are direct, indirect, administrative, and veiled costs associated with disability in the workplace. Direct costs associated with disability are identified as dollar payments for indemnity, sick days, short-term and long-term disability, workers compensation, salary continuation, and medical care paid under group
health plans. Indirect costs are more difficult to measure and are described as overtime payments for co-workers who pick up the workload of the absent employee, the cost of temporary employees, lost productivity, and additional supervisory time to oversee replacement workers. Presenteeism, an often hidden cost of disability, describes the situation where employees come to work but are less productive than usual due to injury, illness, stress, or other distractions (Hummer, Sherman and Quinn, 2002). Based on a 1999 analysis of 17 diseases, researchers found that lost productivity due to presenteeism was about 7.5 times more than productivity lost to absenteeism. Some conditions such as allergies, arthritis, heart disease, hypertension, migraines, and musculoskeletal disorders approached a ratio of from 15 to 1 to 30 to 1 (Adomeit, Baur and Salfeld, 2001).

In contrast, administrative costs aimed at reducing the cost of disability (claim management, loss prevention, safety and risk management, return to work programs, and employee assistance and wellness or health promotion programs) are generally nominal and amount to approximately 1% of the overall cost of disability (DiBenedetto, 1998).

**Morbidity and Cost of Occupational Disability**

According to the Bureau of Labor Statistics, U.S. Department of Labor, a total of 5.7 million injuries and illnesses were reported in private industry workplaces during 2000. In 2001, the lost workday occupational injury or illness incidence rate was about three per 100 workers [http://stats.bls/iif/home.htm](http://stats.bls/iif/home.htm). Behrman (2001) further describes the morbidity of occupational illness and injury in a report that places the number of new work-related injuries and illnesses at 7 million per year. Of these work-related injuries and illnesses, nearly 2 million workers report some injury related disability and another 400,000 report disabling
illnesses. Occupational injuries and illnesses not only contribute to worker morbidity and employer costs, but strain the U.S. healthcare system as well.

Miller and Gailbraith (1995) estimate that that occupational injuries and illnesses cost the U.S. about $17 billion in medical and emergency costs. In 1998 The National Electronic Injury Surveillance System (NEISS) reported an estimated 3.6 million non-fatal occupational injuries and illnesses were treated in U.S. emergency rooms (CDC, 1998). Lacerations, punctures, amputations, and avulsions mostly to the hands represented one-fourth of those visits. Sprains and strains, mainly to the trunk, accounted for another one-fourth of the injuries. The three leading injury events were contact with objects, bodily reactions to exertion, and falls. It is possible these numbers are underreported because NEISS is limited in its ability to identify injuries as work related based on emergency department records due to the emergency department staff’s focus on treatment issues and the resultant omission of detailed injury circumstances data (Jackson, 2001).

The cost of workers compensation and occupational injuries to business are also well documented. In 1995 Miller and Galbraith estimated workplace injuries cost the U.S. about $140 billion. In addition to medical and emergency services, their estimate includes $60 billion in lost productivity, $5 billion in insurance costs, and $62 billion in lost quality of life. Lost quality of life is described as limitation of everyday activities, reduced self-esteem and self-confidence, and stressed family and work relationships (Boden, Biddle & Speiler, 2001). More recently, Liberty Mutual reported $40.1 billion in direct costs occurred in 1999 due to disabling workplace injuries (Liberty Mutual Workplace Safety Index, 2002). Anderson (1999) claims that 11 million employees suffer work-related injuries resulting in $111 billion in payments for wage replacement, disability payments, and medical care. Of the $111 billion spent, 50% is
associated with the payment of lost wages, and about 40-60% is associated with the cost of medical care (Benda, et al. 1998).

Cumulative trauma disorders exemplify the burden of occupational disabilities to employers and have emerged as the fastest growing concern in industry (Roughton, 1996). Cumulative trauma disorders are estimated to account for $1 of every $3 spent on workers compensation or more than $15 to $20 billion annually in direct costs like medical expenses and indemnity. These disorders account for up to $60 billion in total annual indirect costs such as absenteeism, retraining injured workers, training new employees to perform injured employees’ jobs, decreased productivity and quality, and poor morale in the workplace (OSHA, 1999; Roughton, 1996).

The most prevalent occupational injuries and illnesses and associated median lost workdays nationally are presented in Table 2.1 (U.S. Department of Labor, 2002). It is important to note that the most prevalent conditions are not always associated with the most lost workdays. For example, carpal tunnel syndrome represents the highest median number of lost work days while sprains and strains occur most frequently. Thus, while prevention of all workplace disability is consistent with occupational health nursing practice, worksite-specific disability data must be evaluated to aim disability management interventions at conditions that are the most serious, result in the most lost work days, have the greatest expenditures in disability payments, and the like.

**Morbidity and Cost of Nonoccupational Disability**

**Chronic Disability and Disease**

The Robert Wood Johnson Foundation reports that chronic conditions affect almost half of the U.S. population and those affected account for three-
Table 2.1

*Number of Occupational Injuries and Illnesses (in 1,000’s) and Median Lost Workdays by Nature of Injury and Illness*

<table>
<thead>
<tr>
<th>Nature of injury or illness</th>
<th>Total cases</th>
<th>Median lost work days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprains, strains</td>
<td>1,664.0</td>
<td>6</td>
</tr>
<tr>
<td>Bruises, contusions</td>
<td>728.2</td>
<td>3</td>
</tr>
<tr>
<td>Cuts, lacerations</td>
<td>121.3</td>
<td>3</td>
</tr>
<tr>
<td>Fractures</td>
<td>116.7</td>
<td>20</td>
</tr>
<tr>
<td>Carpal tunnel syndrome</td>
<td>27.7</td>
<td>27</td>
</tr>
<tr>
<td>Amputations</td>
<td>9.7</td>
<td>18</td>
</tr>
<tr>
<td>Tendonitis</td>
<td>14.4</td>
<td>10</td>
</tr>
<tr>
<td>Chemical burns</td>
<td>9.4</td>
<td>2</td>
</tr>
<tr>
<td>Heat burns</td>
<td>24.3</td>
<td>4</td>
</tr>
</tbody>
</table>

quarters of the nation’s $1 trillion in healthcare costs life for millions of Americans as previously described (www.rwjf.org/reports/grr/033712s.htm). The prolonged course of illness and disability from chronic disease results in pain, suffering, and decreased quality of life for those affected. Preventable chronic diseases such as sequelae of obesity like type II diabetes, heart disease, stroke, hypertension, gallbladder disease, sleep apnea, and osteoarthritis have contributed to a dramatic increase in the usage of health services and concurrent costs over the last few decades. For example, the direct and indirect costs of diabetes are nearly $100 billion a year and in 2001, approximately $300 billion was spent on all cardiovascular disease (National Task Force on the Prevention and Treatment of Obesity, 2000).

A cross-sectional study of 177,971 employees, retirees, and their adult dependants of a nationwide manufacturing company confirms the relationship between obesity and increased health care costs to employers. Participants who were enrolled in the employer’s health insurance plan during the years 1996 and 1997 were examined to determine the relationship between medical costs and obesity. Height and weight data were collected via a health risk appraisal in order to calculate body mass index (BMI). According to the National Heart, Lung, and Blood Institute’s guidelines, 61% of the study’s population was determined to be overweight and 23% was obese. A statistically significant increase in medical care and prescription drug costs was identified in participants with higher BMI (Wang, Schultz, Musich, McDonald, Hirschland & Edington, 2003).

Improving eating habits and increasing physical activity can reduce obesity and other chronic diseases. If 10% of adults began a regular walking program, $5.6 billion in heart disease costs could be saved. Similarly, a 10% weight loss will reduce an overweight person’s lifetime medical costs by $2,200 - $5,300
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(CDC, 2002). Physical inactivity and proper nutrition are just two of the common themes of worksite wellness programs that have proven to be successful in lowering employer healthcare costs. American Business Information Services (1996) reports that among employers surveyed, cost reductions of 24.1% and 6.9% respectively were achieved via worksite wellness programs.

Arthritis results in estimated medical care costs of $15 billion and estimated total costs (including lost productivity) of about $65 billion (CDC, 1994). Based on an estimated salary of $25,000, the annual cost of absenteeism due to arthritis is $1,810 per affected individual. The remaining $23,190 of salary paid out is at risk from reduced productivity. When reduced productivity due to arthritis is estimated at a conservative 5%, the additional cost is estimated at $1,159 totaling about $3,000 per year for a worker suffering from arthritis (Greenberg, Finkelstein & Berndt, 1995). Individuals who are taught self-management techniques of arthritis as part of disability management programming have demonstrated positive outcomes. For example, participants in a study who were provided with treatment compliance-related memory aides, information on how to find and use resources, ways to cut drug costs, and how to make the most of doctor's appointments showed a 40% reduction in outpatient visits for arthritis and a 20% reduction in pain (Lorig, Mazonson & Holman, 1993).

Asthma and Chronic obstructive pulmonary disease (COPD) are associated with substantial health status impairment and work disability. Among adults of working age (18-64 years), about 5% report having COPD, defined as either chronic bronchitis or emphysema (Collins, 1997) and about 1 in 17 cases of nonparticipation in the labor force can be attributed to COPD. Chronic obstructive pulmonary disease is related to a greater risk of nonparticipation in the
labor force (OR=2.92) and adults with COPD are more likely to indicate a perceived inability to work (OR=19.5) or limitation in the type or amount of work they can perform (OR=12.90) (Eisner, Yelin, Trupin & Blanc, 2002). Chronic diseases such as heart disease, cancer, stroke, chronic obstructive pulmonary disease, and diabetes are among the most prevalent and preventable of all health problems and ultimately result in significant mortality. Table 2.2 identifies the leading causes of disability among persons 15 years or older in the U.S. in 1991-1992 according to a 1994 report by the CDC. In a more recent CDC report on the leading causes of death due to chronic disease, these same disabilities or their sequelae remain a tremendous health burden in the U.S. today as shown in Table 2.3 (2002).

Episodic Disability and Illness

Sporadic absences are also major contributors to costs through lost productivity. Watson Wyatt surveyed over 200 employers in the United States, the United Kingdom, Australia, and Hong Kong in 2001. The employers reported that on any given day, from 2.5 to 4.0% of employees were absent unexpectedly due to illness (2002). For example, the University of Michigan claims that one employer’s costs due to migraine headaches exceed $20 million. A research associate who assisted with the study asserts that the economic impact on employers’ costs is significant because the incidence peaks during the ages of 25 to 55, the prime working years. Only back pain and seasonal allergies are more frequent causes of lost productivity than migraines (Watson Wyatt, 2002).
Table 2.2

*Leading Causes of Disability Among Persons Aged 15 Years or Older, United States, 1991-1992*

<table>
<thead>
<tr>
<th>Cause of disability</th>
<th>% of all deaths resulting from disability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis or rheumatism</td>
<td>17.5</td>
</tr>
<tr>
<td>Back or spine problem</td>
<td>14.0</td>
</tr>
<tr>
<td>Heart trouble</td>
<td>12.5</td>
</tr>
<tr>
<td>Lung or respiratory trouble</td>
<td>7.0</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>5.25</td>
</tr>
<tr>
<td>Stiffness or deformity of limb</td>
<td>5.0</td>
</tr>
<tr>
<td>Blindness or other visual impairment</td>
<td>3.75</td>
</tr>
<tr>
<td>Deafness or serious hearing trouble</td>
<td>2.85</td>
</tr>
<tr>
<td>Stroke</td>
<td>2.75</td>
</tr>
</tbody>
</table>

Table 2.3

Deaths Due to Five Leading Chronic Disease Killers as a Percentage of All Deaths, United States, 1999

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>Number of deaths</th>
<th>% of all deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five leading chronic disease killers</td>
<td>1,634,976</td>
<td>68.4</td>
</tr>
<tr>
<td>Diseases of the heart</td>
<td>725,192</td>
<td>30.3</td>
</tr>
<tr>
<td>All cancers</td>
<td>549,838</td>
<td>23.0</td>
</tr>
<tr>
<td>Stroke</td>
<td>167,366</td>
<td>7.0</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>124,181</td>
<td>5.2</td>
</tr>
<tr>
<td>Diabetes</td>
<td>68,399</td>
<td>2.9</td>
</tr>
<tr>
<td>Other</td>
<td>756,423</td>
<td>31.6</td>
</tr>
<tr>
<td>Total</td>
<td>2,391,399</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Burden of Chronic Diseases as Causes of Death, CDC, 2002
Unfortunately, the causes of episodic disability and illness are usually more difficult to manage due to the confounding nature of the reasons cited for absences. For example, a study reported five common drivers of sporadic absenteeism as entitlement mentality, employee dissatisfaction with job, lack of supervisor involvement, history of recurrent sick leave, and personal and family responsibilities (Watson Wyatt, 2002). However, short stay hospital admissions data are useful in identifying causes of periodic absence and healthcare utilization. Table 2.4 demonstrates the most common diagnostic categories requiring admission. As represented in this table, psychoses results in the longest average length of hospital days while heart disease by far causes the most days of hospital care (National Hospital Discharge Survey: 2000 Annual Summary with Detailed Diagnosis and Procedure Data, CDC, 2002). The data again indicate the need for targeting preventable conditions through integrated disability management efforts.

In summary, as illustrated in Figure 2.1, workers compensation costs are just the most obvious tip of the iceberg of the cost of worker disability to employers and the nation (Fireman’s Fund Insurance, 2003). The tremendous costs of occupational and nonoccupational disability result in lost productivity, disability payments, health care spending, employee turnover, and presenteeism. In contrast, the amount that would be spent on administering IDM programs is only about 1% of the total cost of disability (DiBenedetto, 1998). Thus, assimilating case management, disease and disability management, and wellness programs, and applying them in an integrated fashion across the spectrum of
Table 2.4

Number of Discharges from U.S. Short-Stay Hospitals By Diagnostic Category with Days of Care and Average Length of Stay in 2000

<table>
<thead>
<tr>
<th>Diagnostic category</th>
<th>Discharges in 1,000's</th>
<th>Days of care in 1,000's</th>
<th>Average length of stay in days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease</td>
<td>4,385</td>
<td>20,514</td>
<td>4.7</td>
</tr>
<tr>
<td>Females with deliveries</td>
<td>3,738</td>
<td>9,271</td>
<td>2.5</td>
</tr>
<tr>
<td>Psychoses</td>
<td>1,445</td>
<td>11,750</td>
<td>8.1</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>1,282</td>
<td>7,527</td>
<td>5.9</td>
</tr>
<tr>
<td>Malignant neoplasms</td>
<td>1,156</td>
<td>7,801</td>
<td>6.7</td>
</tr>
<tr>
<td>Fractures</td>
<td>982</td>
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<tr>
<td>Chronic bronchitis</td>
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</tr>
<tr>
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<td>Intervertebral disc disorder</td>
<td>329</td>
<td>971</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Figure 2.1

The Iceberg of Disability

- Administrative Costs
- Occupational Injuries and Lost Time
- Nonoccupational Healthcare Costs
- STD, Absenteeism & Turnover
- Presenteeism

Note. Iceberg concept adapted with permission from Fireman's Fund Insurance Company, Customer Reproducible Poster. H. Lo personal communication (February 12, 2003).
employee disability can be an asset in managing costs as well as improving the well-being of workers.

**Case Management**

Case management is defined by the Case Management Society of America (CMSA) [1995, p. 8] as a “…collaborative process which assesses, plans, implements, coordinates, monitors and evaluates options and services to meet an individual’s health needs through communications and available resources to promote quality cost-effective outcomes” associated with injuries and illnesses. Since the early 1900s public health nurses and social workers performed case management by coordinating services through the public health sector. After World War II, insurance companies employed nurses and others to assist in managing care for returning soldiers with complex injuries. With the formalization of Medicare and Medicaid in the 1970s, case management began to take a more familiar form with the coordination of services in categorically defined groups such as the elderly, low income and mentally ill. As cost containment in health care evolved, case managers have successfully managed the dual priorities of meeting clients’ needs and using health care resources wisely (CMSA, 1995).

**Purpose and Goals of Case Management**

The purpose of case management is to interject compassionate objectivity through collaboration with medical providers, the patient and family, physicians, and community resources. The goals of case management are achieved through a number of activities. The case manager ensures efficient use of resources, an
optimal plan of care, and the appropriate allocation of health dollars. This is achieved by early assessment to ensure that services are generated in a timely fashion and includes obtaining an accurate history and skillful assessment of physical and or mental impairment. An optimal level of patient wellness is achieved through a treatment plan created to meet goals that are established jointly with the client while understanding and integrating the psychological characteristics of wellness. An optimal level of patient wellness is further achieved through patient education and may include alternative therapies and home care methods. Patient advocacy encompasses diligent protection of confidentiality and an understanding of the legal and ethical insures pertaining to case management. The case manager protects the client fiscally by understanding and helping to meet the payor’s requirement for prior approval. Improved quality of care and cost effective provision of health services is affected by evaluating the quality and appropriateness of recommended medical services, understanding healthcare delivery systems, and establishing relationships with referral sources (Mullahy, 1998). The outcomes of these case management activities are enhancement of employee productivity, satisfaction and retention, and facilitating return to work (Powell & Ignatavicius, 2001).

**Disability and Disease Management**

Disease and disability management programs may address occupational and or nonoccupational illnesses and injuries and can be a proactive and or a reactive process depending upon the case finding and prevention methods used. For example, management of disability specific to a disease process (or disease
Integrated Disability Management

management) is an approach to care that seeks to proactively identify populations who have, or who are at high risk for targeted medical conditions such as the chronic diseases discussed in the section on the impact of nonoccupational disability. Conversely, disability management is a process for minimizing the negative impact of an existing impairment due to injury or illness that affects an individual’s capacity to participate competitively in the work environment (Boseman, 2001) and is thus a reactive process.

**Purpose and Goals of Disability and Disease Management**

Disability management supports the patient by promoting a better understanding of the care plan and when to proactively seek care. An effective program also teaches the individual or caregiver to better manage or control the condition or related symptoms and emphasizes the prevention of acute episodes and complications by using cost-effective and evidence-based practice guidelines (Boseman, 2001). Management of disability also encompasses early, aggressive, and safe return to work programs after an illness or injury has occurred.

To complete the early return to work process after recovery or maximum improvement, employer policies must establish mutual goals with disabled workers. Corporate return to work policies should provide support to allow workers to return to whatever form of work they can successfully and safely perform within the context of their physical or mental limitations. Training that provides the knowledge and skills needed to transition to a new type of work
should be provided when necessary. Phase-in programs are useful in testing the returning worker’s health and stamina. Opportunities for part-time as well as full-time and worksite accommodation may also be required (Lerner, 1998).

The goals of disease and disability management are to minimize the impact of injury, disease, and disability to employees in order to enhance the worker’s quality of life and to maintain workplace productivity. Effective programs also deliver cost savings to the employer through reduced cost of short-term disability, long-term disability, health care plans, and workers compensation (Boseman, 2001: http://was.hewitt.com/hewitt/resource/newsroom/pressrel/202/07-15-02.htm). For example, pulmonary edema sends the average congestive heart failure patient to the hospital three times a year. In a disease management program, an expert would teach the patient about the disease, emphasizing the importance of medication, diet, and monitoring weight. The patients’ weight and other health indicators would be monitored remotely and case managers would alert the patient or the physician at the first sign of trouble (Adomeit, Baur & Salfeld, 2001). The following illustrates such a program.

St. Mary’s/Duluth clinic Health system in Duluth, Minnesota recognized the huge burden of frequent hospital admissions, poor quality of life, and the dire prognosis for patients suffering from heart failure and instituted a disease management program (Disease Management Advisor, 2002). Following a comprehensive review of the literature on heart failure and benchmarking with other disease management programs, it was determined that a program was needed that combined additional medical management, greater nursing
surveillance, and a system for providing formal education about heart failure to patients. With this in mind, the nurse manager of the heart failure program developed a plan of care for heart failure patients that focused on the need for individuals to have their medication properly titrated, to obtain prompt and appropriate referrals for additional resources, and to learn the basics regarding lifestyle management of heart failure (Disease Management Advisor, 2002). The result was a mean reduction in the heart failure admission rate of .234 admissions per patient per year compared with an unmanaged incidence of about 2 per patient per year. Further, the average length of hospital stay for participants was 6.4 days compared with reported national statistics of 7 to 9.1 days (Kramper & Cosentino, 2001).

**Integrated Disability Management**

Integrated disability management (IDM) is a hybrid of case management and disability management principles. IDM coordinates administration of short-term, long-term, and workers’ compensation claims administration regardless of the work-relatedness of the injury or illness. This is usually accomplished via a single claim and intake reporting process, coordinated case management, and emphasis on total disability management.

Successful IDM programs achieve cost savings through a reduction in worker injury and illness and utilization of disability benefits through wellness programming, disease management, and case management of disability (Integrated Benefits Institute, 2002).
Chapter III

INTEGRATED DISABILITY MANAGEMENT PROGRAMS:

BEST PRACTICES

The concept of integrated disability management (IDM) should be examined by every business concerned about maintaining a competitive edge in today’s economy through savings in health care and disability payments, as well as improving employee productivity. Companies that measured the results of IDM programs reported an average savings of 19% according to Watson Wyatt (1999). A business plan for the implementation of IDM helps the occupational health nurse organize the planning process to avoid potential pitfalls and present a logical, professional plan to senior management in order to secure the necessary resources. Benchmarking of best practices, procedures, and processes must be performed prior to writing the business plan. Once best practice is identified, the procedure is adapted to the unique culture and structure of the company correlating the mission, goals, and objectives of the proposed service(s) with the ones identified during the benchmarking process. Finally, a business plan is developed that encompasses accounting, marketing, planning, and evaluation components (Kalina & Fitko, 1997).

Successful workplace IDM programs are those that result in minimizing the negative human impact of disability and cost savings to the employer. The process of benchmarking examines how top performing companies accomplish the specific process in question, in other words, studying the best internal practices that produce superior performance (www.best-in-class.com/site_tools/faq.htm). Four successful IDM programs, Pitney Bowes, Hughes Electronics, Federal Express, and Black and Decker are examined in this chapter in order to identify best practices for developing an IDM program.
**Benchmarking Successful Programs**

*Pitney Bowes*

In 1991 Pitney Bowes’ strategic analysis projected spiraling healthcare costs. The company considered ways to reduce this cost growth by improving disability management. The company first gathered data to identify key cost drivers and adopted a program to cut costs by looking to prevention and management to improve healthcare quality. They launched disability management concurrently with other healthcare initiatives including expansion of in-house clinics in number and scope of care, wellness programs, and a medical utilization database for strategic healthcare planning. The overall strategy operates on the following core principles: (1) Target significant medical cost drivers for early, intensive management by analyzing epidemiological aggregate data. (2) Through intensive disability management, return employees to productivity as early and fully as possible without jeopardizing long-term health. (3) Report and manage cases early, making use of the company’s on-site clinics, which were converted into full-featured primary/urgent care facilities both for group health and workers compensation claims. (4) Consider both medical and disability costs as part of a total “episode of care” for each injury or illness, rather than as separate, unrelated costs.

The IDM initiative is unified by cooperating closely with other medical programs including strategic health care planning, a voluntary, incentive-based wellness program that applies disease management programs to higher-risk medical conditions, and five on-site medical clinics that provide free services including case management for less severe ailments.

Prior to creating its IDM program, Pitney Bowes developed a database in 1993 to support detailed analysis of nonoccupational medical utilization.
Eventually the database was expanded to integrate workers compensation data as well. The database is used to identify superior outcomes and best practices in healthcare. The use of the best practices allows Pitney Bowes to manage 460 common conditions using an “episode of care” metric that combines medical and disability costs. The list of conditions fall into four basic categories: planned events such as pregnancy or scheduled surgery, acute onset episodes like upper respiratory or traumatic injury, chronic relapses of diseases like diabetes or asthma, and chronic progressive conditions such as neurologic disorders.

The Pitney Bowes wellness program is staffed and managed internally. Called Health Care University, the program is used as a laboratory to develop best practices to heal, stabilize, or slow the progress of chronic or debilitating conditions. The program uses two key analytic tools: confidential, voluntary health risk appraisals to identify population health trends that need attention, and personal health-risk screenings for conditions such as asthma, cancer, cholesterol, diabetes, and high blood pressure. The program includes four disease management programs: asthma, diabetes, cardiac care, and blood pressure. On-site fitness centers, education, and counseling in health and self-care/consumerism are offered at locations where feasible.

On-site clinics provide primary and urgent care for occupational and nonoccupational cases. Health-risk appraisals, personal screenings, and prevention services such as flu shot and the Health Care University staff provides health counseling services. The full-time staff of 15 includes nurse practitioners, physician assistants and occupational health nurses, plus part-time contract physicians. The clinics primarily treat early-stage and low-severity conditions but also provide rehabilitation and ongoing maintenance in a convenient location for employees, boosting participation and health outcomes. The clinics’ goals are to
encourage people to seek treatment early and to be more involved in self-management, thus reducing the cost of treatment, especially for expensive chronic conditions. The success of these initial efforts led the company to expand the program.

In 1994, the management of short-term disability, long-term disability, Family and Medical Leave Act, and workers compensation were integrated under the umbrella of the Disability Assistance Department (DAD). DAD provides a mix of services to manage claims in geographically dispersed locations. The DAD has an independent database that can be combined with the health care utilization database to provide a robust system for epidemiological analysis. Records remain confidential because only aggregate data are used. Data from every benefit area are available for analysis: Health Care University, on-site clinics, nonoccupational and workers compensation medical, workers compensation indemnity and supplemental payments such as short-term disability, long-term disability, Family and Medical Leave Act, Employee Assistance programs, and mental health. Intake specialists review all incoming messages recorded via an integrated voice response system. Four claims examiners review claims for appropriateness and hand off cases to a nurse case manager where necessary, but can approve a case if there are no substantial medical questions. Case managers coordinate all aspects of claims including return to work and may seek further review by contract specialists as needed.

Performance is measured by comparing the bottom line issues of cost and duration of disability. To measure initial performance, a two-year baseline of all disability cases in 1993 and 1994 was constructed. For the next two-year period (1995-1996), the duration of disability averaged 32% less than in the baseline. To isolate the IDM from other factors such as safety programs, the case mix, age, and
other salient factors were adjusted. Short-term disability duration declined most strongly for circulatory conditions, down almost 56% in two years and musculoskeletal conditions, down 46%. This suggests those conditions most quickly respond to the application of effective case management. While the company’s domestic employee base grew more than 56% from 17,078 in 1991 to 26,750 in 1998, the volume of workers compensation claims remained flat, growing less than 12% over eight years. The number of claims per employee was 29% less in 1998 than in 1991. The workers compensation cost per employee was 38% less and the average cost per claim was 11.6% lower. The return on investment for Health Care University participants was as high as 3.4 to 1. The DAD unit is also developing performance measurements for various aspects of handling calls and for timeliness in reaching determinations and reporting back to involved parties. Pitney Bowes is in the early stages of attempting to capture an accurate estimate of productivity and “hidden costs” expressed as a cost-per-unit-produced. The program will combine costs data from benefits with all manufacturing costs (Mead, 1999).

Hughes Electronics

Hughes Electronics aggressively tracked and managed both occupational and nonoccupational illness and injury after they occurred but the company was not proactive and health care costs were skyrocketing. As a result, Hughes introduced a wellness and prevention program in 1996 after an analysis of the self-funded health care program showed a high level of preventable costs among participating employees for three conditions: cardiovascular, back problems, and lack of self-care.

The program offers free health screenings related to preventable conditions and if conditions warrant, education and follow-up counseling is
provided. The program encourages dietary education and weight loss, smoking cessation, blood pressure management, and cholesterol education. Successful outcomes of the program are demonstrated both in medical cost savings and disability reduction. A 1999 evaluation compared 1996 through 1998 claims experience, looking at the percent of medical claims expense that included a health condition that can be prevented or better managed clinically. Medical savings in these targeted areas amounted to $184 per employee (39% savings) and a net return on investment of 3.4 to 1. For all conditions in 2000, participants averaged medical savings of $481, a decrease of 24% over 1999.

The education and communication components of the wellness program are designed to help participants become better consumers of health care. An analysis considered, for example, the proportion of participants using treatments that don’t improve the medical condition such as professional medical treatment for viral colds. The outcome evaluation showed that participation reduced the number of employees that used poor judgment in seeking medical care by 15%. In addition to medical savings, the 2001 data for participants was compared to disability experience for non-participants. Participants in the wellness program only filed for short-term disability benefits 41% compared to 78% of non-participants. Using the average salary of Hughes’ employees, the average disability cost was $224 for the participant group and $323 for non-participants – 44% higher.

Hughes partnered with its self-funded health claim administrator in 1999 to provide disease management for low back pain, congestive heart failure, asthma, and diabetes. Patients identified through health screenings are referred for nurse follow up for disease management. An evaluation of the 2001 results showed solid improvement for participants in the disease management programs.
Total medical costs decreased from $9.34 million to $7.40 million, down 21%, and per member, per month costs decreased 15% from $471 to $402. After deducting administrative costs of $308,000, return on investment after the first year of the program neared 4:1. Reported trends for quality indicators such as appropriate drug therapy, inpatient utilization, and access to care were also generally positive.

In the early 1990s, a landmark in-house workers compensation case management program reaped a 29% reduction in overall workers compensation costs the first year. As a result of the program's success, it was decided to bring the company's mismanaged short-term disability and long-term disability programs under control. A new program called Back to Work was instituted in 1994 based on the methods used in the company's successful nurse-managed workers compensation case management model. The program requires that employees who are absent from work for more than seven calendar days must report their disability to the Back to Work program in order to get paid for their time away. All workers compensation and short-term disability claims are sent immediately to an outside IDM vendor. Employees with workers compensation and short-term disability are managed on through any periods of long-term disability. When Back to Work is notified that an employee is missing work, information is collected from the employee and/or supervisor concerning the nature of the illness or injury. Employees are sent a form that authorizes a case manager from Back to Work to talk to their doctor about their medical condition but the employer does not receive information about specific disabilities from Back to Work in order to maintain confidentiality. Employees receive the same directed disability management regardless of work-relatedness to ensure quicker return to work. The case manager uses "The Medical Disability Advisor,
Workplace Guidelines for Disability Duration” by Presley Reed (2002) and works with the doctor to adjust the expected return to work date according to the complexities of the case. Physicians are encouraged to be very specific when describing the workers' functional limitations in order to ensure proper placement upon return to work. Employees returning to work go through exactly the same process, regardless of work-relatedness. Case managers accommodate most workers with restrictions using clearly written job descriptions and specific medical restrictions. Supervisors work with case managers to return workers as early as possible and about 95% of employees who file for disability return to work.

Employee Assistance Program and Family Medical Leave Act have been folded into Back to Work to manage lost time, improve employee health, and boost productivity. Time-off eligibility under Family Medical Leave Act ensures that time taken off is aligned with the company's leave policy. Mental health benefits in the Employee Assistance Program have also been integrated since 1995. Employees with mental health conditions arising off the job work with Back to Work and the Employee Assistance Program, which jointly manage such cases to ensure that treatment is appropriate to diagnosis and fosters return to work.

Since implementing the Back to Work disability management program, Hughes has saved a total of $25.6 million from the 1994 baseline. Employee premiums for disability and life insurance programs have decreased. From 1994 to 1995, overall lost time was reduced by 20%. A reduction in short-term disability and long-term disability claims frequency began one year after implementing the disability management program. The number of lost workdays for short-term disability went from 41% above the industry average in 1994 to 6%
below the average in 1998. The number of short-term disability cases per 1,000 employees has declined from 93 in 1994 to 59 in 2001. Short-term disability days associated with nonoccupational disability per 100 employees was reduced from 566 in 1994 to 271 in 2001. The average duration of short-term disability claims declined from 61 days in 1994 to 46 days in 2001. Lastly, at least 80% employee and supervisor satisfaction has been achieved as compilation of survey results show (Integrated Benefits Institute, 2002).

**Federal Express**

Federal Express recognizes the linkage between employee health and productivity and IDM is at the center of the company’s efforts to improve the health and productivity of employees. Federal Express’ human capital management model integrates workers compensation, corporate health and safety, management of productivity loss, best practices in worker and manager training, lost time benefits, health and medical services, and the overall corporate culture. Federal Express addresses two fundamental business challenges with this philosophy known as “People-Service-Profit”: The need to maintain high customer satisfaction levels by having satisfied, dedicated employees, and the need to optimize labor costs in a highly competitive environment where people-related costs typically represent almost 50% of total operating costs (Priddy, 2002). The success of Federal Express’ program is illustrated in part via its contracted nurse-managed occupational disability management program that has realized cost savings and an increase in the improvement of disabled workers.

At the disability management program outset in 1988, Federal Express only used case management and hospital review services in their Memphis corporate office in an effort to contain costs. When results were seen, telephonic case management for all locations was rolled out. Most cases are selected for
management within the telephonic unit that ensures the right intervention at the right time and the approach has reduced costs by 10%. Catastrophic injuries, multiple diagnoses, or cases that may be complicated by chronic illness are referred to a field nurse who can manage the case on a more personal basis. Federal Express’ median disability duration has declined 3 days from 1999 to 2001 and its return to work and maximum medical improvement was 95% in 2001 (www.intracopr.com/IntracoprHome/intraspectives/d/July/article_3.html).

**Black and Decker**

Black and Decker managed workers compensation aggressively but their nonoccupational disability claims were out of control. The occupational and nonoccupational sides were not coordinated and the nonoccupational side did not have a strong return to work focus. The company contracted with an insurance vendor to implement an integrated care effort. The system shifted from the old fully-insured claims model to swift resolution of claims by getting employees back to work early, ensuring necessary care, and job retraining when necessary. Employees call a single contact point regardless of the nature of the illness or injury. This enables better tracking and coordination of benefits. An information database includes job descriptions to help cases managers with the details needed to move people back to work quickly. The tactics are working: After six months, open disability claims are down 20% and some longstanding long-term disability claims have been closed (Anonymous, 2000).

**Best Practices**

Successful IDM programs commonly begin with gathering and analyses of data on a wide variety of healthcare costs in order to identify and target the major cost drivers to the business. Aggregate data are gathered from health plan administrators, onsite clinic utilization reports, and health risk appraisals to plan
interventions. Data are then continually gathered to identify need shifts and evaluate program success.

Best practices include the early reporting and management of all disability cases. A single intake point for the reporting of disabilities that will incur absence from work helps to funnel information to staff who are trained in determining the appropriate course of care and benefit determination for the condition. The single intake point also facilitates coordination of employee health issues between departments. Management of disability may sometimes be accomplished telephonically but some instances may require the services of a field nurse to manage suitably. Once cases are reported, guidelines for the institution of disability management consistent with clinical standards are implemented. Similarly, all leaves and health-related programs should be integrated and successful programs also integrate the management of medical costs and the costs of disability as one episode of care.

In house clinics that provide both occupational and nonoccupational care to workers are often used as bases for the presentation of wellness and chronic disease management programming. Personnel in the clinics are familiar with the workplace and have access to job descriptions and communication with supervisors to facilitate early return to work processes through accommodating any work restrictions.

Finally, and perhaps most importantly, the best-performing programs recognize the contribution that preventive efforts make in reducing disability and healthcare costs. Preventive efforts such as flu shots, fitness centers, and teaching good judgment in seeking medical care have proven to be effective in the programs examined.
The key common themes of successful IDM programs are summed up as:

- Collection and analyses of health care costs data is used to identify key cost drivers in order to plan and prioritize programming.

- Graduated integration of occupational and nonoccupational disability management programs is important because gradual implementation of disability management efforts facilitates control, allows for identification of successes and failures, and eases disability management concepts into the organizational culture.

- Early return to work initiatives, applied regardless of nature of absence, are needed in order apply tried and true methods of managing workers compensation cases to nonoccupational absence which are typically a greater burden to both employees and employers.

- Targeted wellness and prevention programming ensures positive worker outcomes and efficient use of resources when directed toward the most common causes of disability in the workplace.

- Ongoing evaluation of program effectiveness provides an opportunity to measure cost outcomes, worker and management satisfaction, and identify successes and program components that need improvement.
Chapter IV

THE ROLE OF THE OCCUPATIONAL HEALTH NURSE IN DISABILITY MANAGEMENT

Occupational health nurse practice ensures that workers have a safe and healthful work environment and that employees receive timely, appropriate and effective medical care, and benefits under the appropriate payment (occupational or nonoccupational) system (DiBenedetto, 1998). Occupational health nurses and physicians “…further influence total health management and workforce productivity by establishing, directing and coordinating occupational health and safety, health promotion/wellness, disability/case management, provider education (regarding workplace issues and components of benefits plans), and return-to-work programs” (DiBenedetto, 1998, p.40). Three levels of individualized nursing prevention are used in the delivery of IDM. These include primary prevention of both occupational and nonoccupational disabilities, secondary minimization of worker morbidity and employer cost due to disability, and tertiary facilitation of return to work and rehabilitation (Rieth, Ahrens, & Cummings, 1995). In other terms, wellness programming encompasses primary prevention or risk reduction/prevention, early disease detection and management are secondary prevention, and monitoring chronic disease and disability/case management are tertiary prevention (Rogers, 1994). Several examples of occupational health promotion and prevention activities are shown in Table 4.1.

Primary Prevention/Wellness Programming

The purpose of primary prevention and health promotion is to maintain or enhance the well being of individuals or groups of employees and the company in general. Primary prevention is preventing disease occurrence, which includes
Table 4.1

*Occupational Health Promotion and Preventive Activities*

<table>
<thead>
<tr>
<th></th>
<th>Primary Prevention</th>
<th>Secondary Prevention</th>
<th>Tertiary Prevention</th>
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<td>Immunization</td>
<td>Preplacement, periodic health examination</td>
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<td>Health surveillance</td>
<td>Early return to work</td>
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<td>Health motivation/enhancement</td>
<td>Health risk appraisal</td>
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<td>Substance abuse rehabilitation</td>
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<td></td>
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<td>Nutrition education to control illness</td>
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</table>

activities aimed toward changes in knowledge, attitudes, and behaviors of workers and management as they relate to health and safety practices at work, and in a larger sense, lifestyle patterns (Rogers, 1994). Nurses well grounded in wellness theory and practices are central to planning and providing appropriate health promotion initiatives (Clark, 1996). Occupational health nurses offer a unique perspective toward the fulfillment of worksite programs by assessing and incorporating workers perceptions, the employee population’s health needs, and business goals of the company (Sofie, 2000).

The process of wellness is that of moving toward a greater awareness of activities that move the person toward holistic fitness. According to Clark (1996), these activities include appropriate nutrition, positive relationships, stress management, clear definition of life purpose, belief systems consistent with individual needs, self-care, and environmental sensitivity and comfort. The nurse assumes the role of facilitator to help the individual or population group with these activities. The facilitator teaches self-assessment, assists the client in developing wellness goals and plans to meet those goals, and self-evaluation of success.

Worksite health promotion programs typically include components that minimize worker risk for developing chronic diseases that result in human suffering and medical costs thereby reducing employer health care costs. Health risk appraisals are also aimed at allowing specific interventions to increase awareness about lifestyle risks in order to change behaviors (Anderson & Staufacker, 1996).
Integrated Disability Management

The rationale for health promotion programming in the workplace has three main components. First, the treatment of preventable illness and injury increases the cost of health care. Second, health promotion strategies improve teamwork, innovation, and creativity in the workforce. Lastly, health promotion has the potential to improve productivity and quality of life. As such, workplace health promotion programs help achieve organizational and personal goals which are described as improved employee productivity and morale, reduced health care costs, recruitment and retention of employees, reduction of major health risks, improved energy and resilience, and balanced work and personal life (Campbell, 2001).

A number of reports tout the effectiveness of worksite health promotion programs. For example, Shephard (1996) reports that regular participants of worksite fitness and exercise programs reduced body mass by 10% and reduced body fat by 10-15%. Worksite weight control programs can produce weight loss of 1-2 pounds per week among participants according to Hennrikus and Jeffery (1996). Main strategies used for nutrition and cholesterol management programs in the workplace are individual counseling and group education. Cholesterol reductions in the 5-9% range and dietary habits improved as a result of participation (Glanz, Sorenson & Farmer, 1996). Group programs on smoking cessation in the workplace have reported success rates of 20-60% at 6 to 18 months (Erikson & Gottlieb, 1998). Health care demand management programming in the workplace has also proven to be effective. These programs aim to provide information and discussion opportunities that enable employees to
make cost-effective and efficient decisions about seeking medical care (O’Donnell, 2002).

**Secondary Prevention/Disease Management**

Secondary prevention occurs after a disease process has already begun and prevents further disability from occurring through early detection and prompt treatment (Rogers, 1994). For many Americans, overconsumption of some dietary components contributes to obesity and to increased risk of nonoccupational chronic diseases such as heart disease, cancer, and diabetes. These nutritionally related diseases have high personal and social costs; they reduce quality of life and work productivity and increase health care costs, premature disability, and death. Once a disease process has been identified, worksite nutrition programs that control illnesses like hypertension and diabetes are appropriate and have proven to be effective in reducing disability and health care costs (O’Donnell, 2002).

Preventive efforts aimed at both occupational and nonoccupational conditions are the most effective at reducing the impact of disease at the individual level as well as cost savings for the employer as evidenced by best practices of successful programs. The efficacy of preventive efforts related to occupational disability was demonstrated in a study that examined the cost-effectiveness of nursing management of occupational injury and illness. The cost of occupational health nurse-managed workers compensation in a facility versus costs where cases were not managed was shown. In the facility where nurses managed workers compensation cases, the cost was calculated to be $.22 per $100
of payroll versus $1.11 per $100 of payroll where cases were not managed (Morris and Smith, 2001).

Nonoccupational preventive efforts in the workplace are described by Pelletier (1996) as including a medical screening where physiological measures like cholesterol, weight and height, blood pressure, and aerobic fitness are often collected. Participants are usually given personalized feedback after the initial screening including information about risky health behaviors and how to change them.

**Tertiary Prevention/Case Management**

**Disease Management**

"Tertiary prevention is intended to restore health as fully as possible and assist individuals to achieve their maximum level of functioning" (Rogers, 1994, p. 38). A strong belief exists among health promotion professionals that disease management programs will aid in alleviating large amounts of healthcare dollars that are now spent on chronic illness (Anonymous, May 2000). Presenteeism due to chronic disease is controllable and preventable according to providers of on-site employee health care and preventive health programs (Hummer, Sherman & Quinn, 2002). Adomeit, Baur and Salfeld (2001) describe disease management testing models in Germany as helping insurers reap net savings of 10 to 30% for specific groups of patients. They estimate that treatment compliance would reduce the number and severity of relapses, thereby cutting medical expenses resulting in a savings of $1,100 in average claims cost in the patients participating in the disease management program versus a $700 increase in average claims costs in
the control group. DiBenedetto concurs that programs that manage chronic illness in the workplace are proven to be effective in reducing worker morbidity and employer health care costs (1998).

Nurses are ideally suited for the disease management role, which requires competency in all aspects of case management and a high level of expertise in the natural progression of disease and teaching patients compliance with treatment regimens. Cross-functional team coordination and administration of functional status and risk-assessment tools by the nurse facilitate early return to work. A systems approach to disease management and best practice clinical guidelines ensures consistent and competent management of a variety of health conditions. Knowledge about health care finance enables the occupational health nurse to advocate for the patient and ensure effective use of health benefits. Enabling and encouraging clients to improve health and make appropriate use of healthcare resources helps to reduce the cost of health care. Markers to track progress allow for measurement of outcomes and evaluation of program effectiveness. Finally, use of data integration and management facilitates targeting programs at the most prevalent and costly workplace disabilities (Huston, 2002).

Disease management programs include both population-based and client-centered interventions (Dacko, 2002; Huston, 2002). Population-based disease management programs usually begin with an assessment and economic analysis of the healthcare resource utilization. In the occupational health setting, aggregate data on inpatient and outpatient services as well as prescription utilization can usually be obtained from the health plan administrator. The most
prevalent and costly sources of disability in the workplace are logical targets for group interventions (Huston, 2002). In planning group interventions, the occupational health nurse must carefully consider the effectiveness, participation, and cost of programming. Tools that fit the bill in these areas include brochures and informational websites, and group health teaching. Brochures and websites are low cost, easy to distribute and high reach; however, they are not traditionally very effective. Group health teachings are comparably moderate in cost and provide for limited support and are not confidential (Dacko, 2002). Individual disease management efforts are focused on empowering the client and the family, anticipating emergencies, and developing plans to prevent panic hospital re-admission and emergency room visits (Thorn, 1993).

Whether population-based or client-based, the roles and functions of the nurse in disease management are similar. A baseline assessment as to the prevalence of disease in a population or individual level of functioning in the presence of the disease is usually performed first. Economic analyses of diseases and resource utilization allow determination of the most heavily utilized resources and what additional resources may be needed to provide comprehensive care. Opportunities for early intervention must be identified and delivered, and care guidelines that reflect best clinical practices must be developed in conjunction with the physician and other providers (Huston, 2002).

*Early Return to Work*

The role of the occupational health nurse in case management is to help employees turn to work from both occupational and nonoccupational disability.
Several terms are used to label the return to work process including light duty, restricted duty, transitional duty, modified duty, and return to work or temporary assignment. The occupational health nurse interacts with the employee, family members, health care providers, supervisors, human resource managers, labor representatives, and coworkers to facilitate early return to work (Haag & Kalina, 2002).

Return to work polices and programs must have the support of management in order to be successful. Some components of successful programs include specific goals, clearly defined advantages of the program, detailed job analyses for every position, physical capacity forms for communications with health care providers, availability of meaningful work within the limitations of the employee, defined duration of temporary accommodations, and a review and monitoring process (Tourigian, 2002).

Immediate post injury or illness management by the occupational health nurse is essential for the maximum benefit of the employee and the employer. The occupational health nurse ensures access to immediate medical management of the injury or illness. In the case of a work related injury or illness, a report of the incident must be obtained immediately. With all cases, ongoing communication with all key stakeholders must be established. Aggressive follow up and periodic review of all lost time cases is essential in sustaining appropriate level of care and rehabilitative efforts as well as communicating caring and value to the employee (Haag & Kalina, 2002).
The ultimate goal is to return the employee to function with appropriate cost containment. Benefits to the employer and the employee are realized when effective practices are observed. Benefits to the employee include financial security, positive reinforcement of self-image, positive reinforcement of employee’s efforts towards recovery, sustaining working relationships through contact between injured worker and coworkers, reinforcing the “going to work” habit, and creating a sense of wellness rather than illness. Benefits to the employer include the establishment of goodwill, active participation in the employee’s recovery, enhancement of community perceptions about the company, reduction of temporary worker costs, maintenance of productivity, claims cost control, workers compensation and health care benefits claim management, and preventing potential litigation (Haag & Kalina, 2002).

In summary, the result of occupational health nurses’ preventive efforts in the disability management process is increased health status of workers – translating into decreased utilization of healthcare resources, improved quality of life, and superior attendance and productivity in the workplace.
Best practices of successful integrated disability management (IDM) programs and the role of the occupational health nurse in primary, secondary, and tertiary prevention of disability were discussed in chapters three and four respectively. In this chapter, common themes of successful programs and the role of the occupational health nurse are used as a framework for developing a model IDM program. The common themes of successful programs identified from an analysis of four programs (Chapter 3) include collection and analyses of health care costs data, graduated integration of occupational and nonoccupational disability management programs, early return to work initiatives for all disabilities, targeted wellness and prevention programming, and ongoing evaluation of program effectiveness.

Collection and Analyses of Health Care Costs Data

Data that show aggregate benefit usage for the employee population are usually available from health plan administrators for the purpose of economic analyses of short-term disability, and occupational and nonoccupational health claims costs. For example, regular reports that detail expenses for inpatient and outpatient care, and workers compensation medical costs by case mix and prescription category can be collected for program planning. Short-term disability and data on costs of sporadic absence are generally administered through an internal sick leave program and cost data may usually be obtained from the payroll or benefits department. Occupational health clinic encounter logs that show the most common causes of clinic visits are also useful in identifying utilization and costs trends. Analyses and organization of the data by
the occupational health nurse illuminates the key health care cost drivers and conditions that are the most serious and result in the most lost workdays. The information is then used to plan and prioritize preventive nursing efforts to manage disability, reduce costs, and boost productivity.

The occupational health nurse can provide primary preventive efforts that include general health and health enhancement activities such as nutrition and exercise programs, and encouraging the use of personal protective equipment at the workstation or seat belt usage in personal and company vehicles. Immunization programs, stress management, smoking cessation, and health risk appraisals are additional examples of primary preventive measures. The monitoring of health and illness trend data and the implementation of health surveillance and educational programs to control identified illness are secondary preventive efforts. Finally, monitoring of chronic illness, managing disability, early return to work initiatives, and rehabilitative efforts by the occupational health nurse are tertiary prevention efforts aimed at minimizing worker disability and reducing health care costs.

Efficient Use of Existing Resources

Adapting existing resources to take advantage of opportunities in a changing environment should be a part of the occupational health service’s strategic plan for developing new programs (Cox, 2002) including IDM. Existing resources are evaluated in the context of best practices to identify efficient and effective means for developing an IDM program appropriate for the workforce. Some basic requirements for operating an IDM program include, for example, occupational health nursing personnel, the physical plant (office and medical care space), a network of community resources for health education and support, a selected panel of medical providers for the provision of occupational and
nonoccupational health care, and personal computers with expandable database for collection, integration, and analyses of health-related costs. Examination of the health costs data and on-site clinic utilization identifies opportunities to use existing resources more efficiently and demonstrates where additional resources should be allocated in order to implement the components of the model IDM program. For example, if utilization review confirms that occupational health nurses’ hours are being fully utilized in the performance of current responsibilities, part-time clerical assistance with administrative tasks and the like may be indicated to ensure appropriate utilization of nursing expertise.

**Graduated Integration of Occupational and Nonoccupational Disability Management Programs**

Graduated integration of occupational and nonoccupational disability management programs facilitates control of programming by gradually introducing various stages of disability management. Gradual introduction of new programs allows opportunities to identify successful implementation strategies and lessons learned from unsuccessful strategies. At the outset, for example, IDM principles could be restricted to the employee population versus inclusion of dependents in order to identify practices that best fit the culture of the workforce and the missions of the company.

Graduated integration of existing disability management programs sets the stage for easing new concepts about disability management into the corporate culture. For example, there may be resistance by employees to the application of case management and early return to work strategies to nonoccupational disabilities, time will be needed to ramp up electronic data gathering and reporting systems, human resource policies and procedures that currently govern disability must be reviewed and integrated, and job descriptions may need to be
updated to reflect the level of detail required to accommodate return to work restrictions. In other words, fragmented systems associated with the management of employee absence are unified in integrated disability management. The role of the occupational health nurse is to facilitate and coordinate the various components of integrated disability management. The nurse acts as a liaison between departments, facilitating communication, acting as change agent, and educating participants about the rationale and anticipated benefits of implementing the new program.

*Early Return to Work Initiatives*

In this model, fragmentation is eliminated and early return to work initiatives are instituted by use of the occupational health nurse as the single contact point and gatekeeper for accessing occupational and nonoccupational benefits. Integrated disability management nursing activities in this context are tertiary preventive efforts that occur after the employee reports a disability episode. Initial preventive efforts after a disability is reported include assessment of all incoming employee communications and coordinating disability care within the appropriate system. The employee is directed to the appropriate benefit or leave resource, for example, workers’ compensation, personal healthcare benefits, and family and medical leave congruent with the employee’s situation. This is accomplished through maintaining routine communication with affected employees and medical providers, determining appropriateness of care, care planning with workers and their families, and coordinating community resources as indicated. Later in the disability process, early return to work initiatives including specific goal setting, physical capacity evaluation, and ensuring that meaningful work is located within the employee’s physical or mental capabilities.
The assumption of additional responsibilities by the occupational health nurse as described above requires examination of the resources needed to perform these additional tasks. Improvement in telephone access for employees and ability of the occupational health nurse to work telephonically may be indicated. Expansion of the individual nurse’s knowledge base may also be necessary to insure that the nurse has the tools needed for success and that case management principles are applied consistently and fairly across the spectrum of workplace disability. Thus, the use of professional reference standards, such as *The Core Curriculum for Case Management* (2001) and Work Loss Data Institute’s *Official Disability Guidelines* (2002) facilitates the consistent and fair application of expected disability durations while considering individuals’ needs and avoiding “cookbook” approaches.

**Targeted Wellness and Prevention Programming**

Wellness and prevention programming must be planned according to the needs identified in the examination of aggregate health claims data. As discussed previously, main healthcare cost drivers such as serious health conditions and those that result in the most lost workdays should be targeted through primary, secondary, and tertiary preventive efforts. For example, individual and group employee education outlets to prevent illness and injury and to aid those affected with emerging or chronic illness should initially be aimed at the top occurring conditions among the workforce. Occupational health nurses can expand their practice to enable healthy employee behaviors and wise use of healthcare resources through the distribution and coordination of self-care literature and education as well. Wise health care consumerism and self-care techniques are proven examples of effective methods of reducing health care costs. Self-care and health consumerism materials are typically packaged together in a paperback
book format that is relatively inexpensive. The use of such a preventive tool would be a good place to start to expand preventive efforts in an IDM model and is included in the sample cost-effectiveness analysis presented later.

**Ongoing Evaluation of Program Effectiveness**

A number of factors must be considered in planning for evaluation of an integrated disability management program. Systematic evaluation validates the effectiveness of the instituted practices and the contribution to the quality and outcomes of care. Evaluation provides the best way for the occupational health nurse to determine whether expenditures for implementation are justified and identifies opportunities for ongoing process improvement. Evaluation also establishes cost/benefit and contributes to evidence-based practice that may be shared with colleagues. Successful programs engage administrative support through the use of systematically collected data that examines the impact of programming (Lamb, Donaldson & Kellogg, 1998).

An expandable occupational health database that may be combined with benefits and disability data from other departments and sources should be used to track disability durations and trends in disability benefit usage. Finally, periodic re-examination of the outcomes of the IDM program on health claims costs and short-term disability claims is ongoing and will determine the economic success of the model program and provide information for redirection as needed. For example, if primary and secondary efforts aimed at reduction of claims related to the top sources of health claims and short-term disability are successful, interventions aimed at other leading causes of absence and health costs drivers would be a likely next step.

Figure 5.1 illustrates the common themes of successful programs in relation to the role of the occupational health nurse. The figure illustrates that the
common themes are open (dotted lines) to articulation with the occupational health nurse as coordinator or manager of the IDM. In this role, the nurse collects and analyzes health care costs data in order to plan programs that gradually integrate occupational and nonoccupational disability management. In the model, return to work initiatives are applied to all workplace disabilities and wellness and prevention programs are targeted toward those conditions that are most prevalent and costly among the workforce. The program is continually evaluated for effectiveness and the process is ongoing. Clarification about economic analyses and an example of a cost-effectiveness analysis for implementation of the model program follows.

_Economic Analysis of Planned Interventions_

The economic value of any healthcare program must be demonstrated in order to ensure the support of top leadership and the provision of additional resources. Five analytic tools are commonly used in assessing the economic effects of a proposed healthcare intervention: cost-minimization analysis, cost-consequence analysis, cost-effectiveness analysis, cost-utility analysis, and cost-benefit analysis. The primary difference between the methods is in how outcomes are measured. Cost-effectiveness analysis is most commonly used in the evaluation of proposed healthcare initiatives because outcomes are measured in the same units between alternatives, such as dollars per life-year gained or cases avoided (Stone, Curran & Bakken, 2002).

In examining the cost-effectiveness of implementing a model integrated disability management (IDM) program, main outcomes of interest are selected to calculate a cost-effectiveness ratio. To illustrate, the outcome of a 20% cost savings through establishment of telephonic nurse coordination of all disability
Figure 5.1

Integrated Disability Management Model

- Collection & analysis of health care costs data
- Ongoing Evaluation
- Occupational Health Nurse
- Graduated integration of occupational & non-occupational disability management
- Targeted wellness and prevention programming
- Return to work principles applied to all disabilities
The necessary resources selected for implementation of the model include:

- Telephonic single intake point for communications related to all workplace absence
- Clerical support
- Employee self-care items
- Practice resources for the occupational health nurse

Estimated costs to provide the necessary resources for the model program are derived from price quotes from internal and external vendors and are illustrated in Table 5.2. Costs will vary and must be assigned to each item according to prevailing regional and local variations. Comparators are the cost of non-intervention. These include the cost of not managing short-term disability, the cost of disorganized wellness and disease management programming, and the cost of employees who are uneducated about self-care activities and wise use of health care resources. The costs and benefits of the model program are then summarized in a cost-effectiveness ratio, following a formula: \((C_1 - C_2)/(E_1 - E_2)\)

where \(C_1\) equals the cost of the new intervention, \(C_2\) equals the costs of the comparator, \(E_1\) equals the effect of the new intervention, and \(E_2\) equals the effect of the comparator. An example of a cost-effectiveness ratio for the implementation of a model IDM program is presented in Figure 5.2.
Table 5.1

Description of a Company's Healthcare and Short-Term Disability Costs and Projected Savings after Integrating Disability Management

<table>
<thead>
<tr>
<th></th>
<th>2001 total corporate cost</th>
<th>20% savings in health claims and short-term disability payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare benefits</td>
<td>$3,787,206</td>
<td>$446,890</td>
</tr>
<tr>
<td>(including drugs, inpatient,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>outpatient, and professional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fees)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STD payments</td>
<td>$1,027,221</td>
<td>$121,212</td>
</tr>
<tr>
<td>Total</td>
<td>$4,814,427</td>
<td>$568,102</td>
</tr>
</tbody>
</table>

Note. It is estimated that an IDM will result in a 20% savings in healthcare claims and short-term disability benefit spending among employees in a pilot program. Cost analysis does not include dependent healthcare costs.
### Table 5.2

*Estimated Costs for Developing Telephonic Single Intake Point, Nursing References, and Employee Self-Care Materials*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost assigned</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New multi-line desk phones</td>
<td>Allow continued access to Health Services</td>
<td>4 @ $180</td>
<td>$720</td>
</tr>
<tr>
<td>Cordless headset</td>
<td>Ensure nurse comfort and ability to multi-task</td>
<td>4 @ $300</td>
<td>$1,200</td>
</tr>
<tr>
<td>Toll free telephone no. with menu program for accessing various locations</td>
<td>Facilitate employee access for various locations and services</td>
<td>$20/mo. plus calls = $50/mo. x 12 mo. =</td>
<td>$600</td>
</tr>
<tr>
<td>Clerical support</td>
<td>Free nursing time for additional duties</td>
<td>5 hrs/wk @ $10/hr x 4 locations X 12 mos. =</td>
<td>$2,400</td>
</tr>
<tr>
<td>Employee self-care items</td>
<td>Self-care book</td>
<td>1,100 @ 5.99 plus $89 for Instructor materials</td>
<td>$6,678</td>
</tr>
<tr>
<td>Core Curriculum for Case Management</td>
<td>Nursing education and resource material</td>
<td>3 @ $39.95</td>
<td>$120</td>
</tr>
<tr>
<td>Official Disability Guidelines web format</td>
<td>Access to disability guidelines and best practices via web and ICD 9 code feed to existing database</td>
<td>4 users @ $135 per yr.</td>
<td>$540</td>
</tr>
</tbody>
</table>

**Total Implementation Cost** $12,258

Note. Figures derived from internal and external price quotes for implementing selected integrated disability management programming.
Figure 5.2

Cost Effectiveness Equation for Model Integrated Disability Management Program

\[
\frac{(C_1 - C_2)}{(E_1 - E_2)}
\]

\(C_1 = \text{cost of new intervention} = \$12,258\)

\(C_2 = \text{non intervention comparator} * = 0\)

\(E_1 = \text{effect of new intervention} ** = \$568,102\)

\(E_2 = \text{effect of no cost savings comparator} *** = 0\)

\[
\frac{(12,258 - 0)}{(568,102 - 0)} = 2\
\]

Note. For an investment of 2% of the total cost, a savings of \$568,102 may be realized in one year.

* Assumes occupational health unit operating costs do not increase

** Assumes estimated cost savings with implementation of IDM program

*** Assumes STD and health care costs stay the same
Ethics

Ethical dilemmas occur when two ethical principles conflict. Conflicting beliefs and values are sometimes barriers to successful intervention and recovery, as well as conflict between health care providers, payors, and patients and their families. In the delivery of disability management services, ethical dilemmas must be identified and dealt with to aid in the problem solving process. In disability management, ethical dilemmas may occur, for example, when treatment causes severe or life-threatening side effects such as the potentially debilitating side effects of chemotherapy used in treatment of terminal cancer victims. Ethical principles of beneficence vs. nonmaleficence conflict in this case. When the provision of more services to a demanding patient is unfair to others, autonomy vs. justice comes into play. When sharing a grave prognosis will negatively impact recovery, the principles of veracity and nonmaleficence are at odds. There are no right and wrong answers to ethical dilemmas so nurses should develop a framework for understanding and analyzing these situations. Professional decision making frameworks and peers can be consulted or problems may be presented to organization ethics committees or other resources (Ling, 1999). To serve as an advocate for individuals in today’s massive, intricate health care delivery system, a case manager needs to know the laws governing patient rights, fair treatment, entitlements; for example, COBRA and available appeals processes (Mullahy, 1998).

Employee privacy concerns are often cited as obstacles to disability management (Wyatt, 1999). Some employers opt to outsource medical case management in order to preserve confidentiality. Outsourcing is not essential though, because the employer does not need to know the diagnoses but rather the knowledge of what the employee physically or mentally can or cannot do.
Another solution is to use the Employee Assistance Program (EAP) service to help protect employee confidentiality because personal disability becomes a family issue. The EAP can talk to employees about the financial and caregiver issues that arise (Anonymous, 2002). Usually, the occupational health nurse maintains sight of the patient’s right of confidentiality and the nurses’ ethical obligation and is able to protect the patient’s right through advocacy and education of the employer (Rogers, 1994).

Balancing containment of health care costs and quality of care is an issue that affects health care professionals. This particularly affects occupational health nurses because workers are being returned to work sooner after illness or injury. "To obtain a balance in quality and health care costs, both effectiveness and efficiency must move in positive directions indicating health improvement goal achievement at a reasonable or low cost" (Rogers, 2000b, p. 441). As an advocate of the worker and an agent of the employer, the occupational health nurse should be involved in establishing a cost effective health program that addresses the company’s bottom line, but ensures the rights and health of the work force. The ethical principles previously discussed and consultation with peers can enhance health care effectiveness and aid in decision-making (Rogers, 1992).

Policy Implications

Improved information about the impact of occupational and nonoccupational disability is needed to set priorities for developing broader policies to prevent disease, injury, and disability. This information would help guide improved policies in workers’ compensation, health care, and workplace accommodation (Weil, 1999).
Nurses must study the future of chronic illness management in order to anticipate, change, and influence its direction. The preferred future of chronic illness management involves nurses functioning in the role of case managers in disease management programs. To achieve this, the nursing community must communicate the ability of nurses to coordinate care, be involved in developing clinical practice guidelines, produce more educated nurse executives, form single service networks that subcontract with health plans, and prepare advanced practice nursing (Jamison, 1998). Integrated disability management should be examined by nursing organizations and employers interested in expanding the scope, efficiency, and cost-effectiveness of occupational health nursing services.
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Sent: Wednesday, February 12, 2003 12:54 PM  
To: Yacobozzi, Shelly J  
Cc: Steven_K._Buck@ffic.com  
Subject: RE: iceburg figure for external use

Since Mary Lou Wassel is not listed in our employee directory, and there is no other reference to Fireman's Fund owning this image, we are unsure of our right to give permission, but have no objection to your using this if we do have the rights. Best of luck in your paper.

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Director, Advertising and Marketing Communications  
Fireman's Fund Insurance Company
Yes, you may cite and use IBI graphics from the Hughes study. I attach various pieces, fyi.

> "Yacobozzi, Shelly J" wrote:
> Dear Bill:
> I am interested in the detailed study on the Hughes IDM program. By the way, do I have your permission to reproduce any of the data in table format for use in my paper? I certainly would cite the proper sources if you give your permission.
> Thank you,
> Shelly Yacobozzi, RN, BSN, COHN-S/CM