

*Dedicated  
to change  
Fifteen years  
of advancing  
worker health*

*Annual Report 2004*





# The Institute at a glance

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**T**he Institute for Work & Health (IWH) is an independent, not-for-profit research organization. Our mission is to conduct and share research with workers, labour, employers, clinicians and policy-makers to promote, protect and improve the health of working people.



## ***What We Do***

Since 1990, we have been providing research results and producing evidence-based products to inform those involved in preventing, treating and managing work-related injury and illness. We also train and mentor the next generation of work and health researchers.

## ***How We Share Our Knowledge***

Along with research, knowledge transfer and exchange is a core business of the Institute. The IWH commits significant resources to put research findings into the hands of our key audiences. We achieve this through an exchange of information and ongoing dialogue that ensures that research information is both relevant and applicable to stakeholder decision-making.

## ***How We Are Funded***

Our primary funder is the Ontario Workplace Safety & Insurance Board (WSIB). Our scientists also receive external funding from major peer-reviewed granting agencies.

## ***Our Community Ties***

The Institute has formal affiliations with four Ontario universities: McMaster University, University of Toronto, University of Waterloo, and York University. The Institute's association with the university community and its access to workplaces and key sources of data has made it a respected advanced training centre. Over the last several years, IWH has hosted a number of international scientists. Graduate students and fellows also spend time at the Institute. They receive guidance and mentoring from the scientific staff and participate in projects, which enables them to gain first-hand experience and make vital connections to the work and health research community.



# 2004 at the Institute

The Institute for Work & Health has seen numerous changes since it first opened its doors in 1990. As we look back over the past 15 years, there have been improvements to occupational health and safety systems and interventions, groundbreaking research leading to change and new understanding about the treatment and prevention of workplace injury. However, one thing remains unchanged—our commitment to undertake and share research that addresses relevant workplace health and injury prevention issues.

In this year’s Annual Report we look back at some of the key accomplishments of the Institute over the past decade and a half. We have also solicited the views of six international experts on important lessons from the past 15 years and reflections on the challenges ahead.

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## A message from the Chair and President



Mark Rochon,  
Chair, Board of  
Directors

Dr. Cameron Mustard,  
President

In the late 1980s, Dr. Robert Elgie, Chair of the Ontario Workers' Compensation Board and Dr. Alan Wolfson, Vice-chair and President, saw the need for an independent research organization in the area of workplace health and disability. They envisioned a multidisciplinary research unit that would focus on improving the effectiveness and efficiency of the clinical management of work-related injury and disease, and would provide relevant, high-quality studies to improve the knowledge base of health-care professionals and policy-makers in Ontario. Their vision led to the founding of the Institute for Work & Health in 1990.

In our 2004 Annual Report, we reflect on the first 15 years of the Institute's work and the progress and opportunities for improvement in occupational health and safety through the voices of internationally prominent experts.

The Institute for Work & Health is an independent, self-governing institution whose research mandate focuses on questions of relevance and utility to Ontario workers, employers, organized labour, clinicians and insurers in their efforts to reduce the incidence and burden of work-related morbidity. The Institute strives to produce research that is competitive with the standards of excellence attained in research-intensive universities. Of equal importance to the Institute is the responsibility for making its research findings available to those who can

make use of them through effective knowledge transfer and exchange.

Since its inception, the Institute has broadened its research and knowledge transfer activities beyond our original mandate, which focused on evaluating the effectiveness of clinical interventions in treating work-related musculoskeletal disorders. Our mandate now extends to the identification of effective workplace interventions to prevent work-related musculoskeletal disorders. We also examine optimal strategies to support early and safe return to work among injured workers, and conduct research on aspects of insurance and benefit design that supports the development of effective compensation policies.

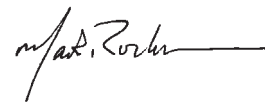
The Ontario Workplace Safety & Insurance Board (WSIB) provides a substantial portion of the Institute's

funding and helps to shape its research priorities along with other stakeholders in the Ontario economy. In addition to investing in the Institute for Work & Health, the Ontario WSIB allocates funds to high-quality research teams based at Ontario universities through the the WSIB Research Advisory Council. In 2004, the Research Advisory Council marked the retirement of its founding chair, Dr. Robert Norman, and the appointment of Dr. Jean-Yves Savoie as chair. The Institute for Work & Health is an active partner in the work of the Research Advisory Council, building evidence of effective practices for the primary and secondary prevention of workplace injury, illness and disability in Ontario. WSIB support for the Institute for Work & Health and the activities sponsored by the Research

Advisory Council are crucial elements in the effort to reduce the burden of work-related disability in Ontario.

In our first 15 years, we have been fortunate to receive strong contributions from our Board of Directors and our standing advisory committees. In 2004, three individuals accepted invitations to serve on the Institute's Board of Directors: Dr. Peter George, President of McMaster University; Mr. Daniel McCarthy, Director of Research and Special Projects, United Brotherhood of Carpenters and Joiners of America; and Dr. Roland Hosein, Vice President, Environment Health & Safety, GE Canada. We thank all of our advisory committee and Board members for their dedication, thoughtful deliberation and creativity.

On behalf of the Board, we also want to thank and congratulate Institute staff on a successful and productive year. We join Institute staff in looking forward to the year ahead and to sharing the results of our ongoing research to support the protection of the health of working people in Ontario.



*Chair, Board of Directors*



*President*



In 2004, the Gross Domestic Product (GDP) of the Ontario economy was \$518 billion, or 40 per cent of Canada's economic activity. Ontario has one of the most trade-dependent regional economies in the developed world and its labour force of nearly 6,000,000 is among the most highly educated in North America. While average labour-market earnings in Ontario are higher than the North American average, employer payroll costs are dramatically lower. Ontario's lower payroll costs reflect the province's reliance on a tax-financed health-care insurance system and a workers' compensation system that has consistently been in the lowest quartile of payroll premium costs in North America.



The economic burden of injury, illness and disease from workplace exposures remains high in Ontario. International estimates place the economic cost of work-related injury and disease in the range of 3-4 per cent of GDP. In Ontario, this represents \$15-20 billion in preventable disability and economic burden.

The Institute for Work & Health was created in 1990 to address the burden of disability in the Ontario workforce. In the late 1980s, Dr. Robert Elgie, the Chair of the Ontario Workers' Compensation Board (WCB), and Dr. Alan Wolfson, the Vice-chair and President, foresaw the need for an independent research organization to study workplace health and disability. They envisioned a multidisciplinary research unit that would focus on improving the effectiveness and efficiency of treatments for work-related injury and disease by providing health-care professionals and policy-makers with high-quality research. Their vision led to the creation of the Ontario Workers' Compensation Institute in 1990. The Institute's original mandate was to conduct research relating to the clinical management of injured workers, to produce new knowledge for the training of medical rehabilitation professionals and to evaluate, through an accreditation process, the quality of community-based rehabilitation services sponsored by the WCB.

The Institute has broadened its mandate over the past 15 years, and now conducts research on many topics that may help to reduce injury, illness and disability in the Ontario workforce. These topics include primary prevention interventions in the workplace, effective and efficient methods of health-care delivery, safe and timely return to work for injured workers, labour-market experiences and their health consequences, and disability compensation systems and their behavioral consequences for stakeholders. In alignment with the Workplace Safety & Insurance Act (1997), which established a prevention mandate within the Ontario WSIB, the Institute has expanded its focus on the primary prevention of work-related musculoskeletal disorders.

For the past 15 years, the Ontario WSIB has provided crucial funding to the Institute. The WSIB's funding contribution represents one-quarter of one per cent of workers' compensation payroll premiums in Ontario, which are currently scheduled at a rate of approximately \$2 per \$100 of assessable payroll for the 70 per cent of Ontario workers insured under the workers' compensation system. The WSIB's combined investments in the Institute for Work & Health and the programs supported by the WSIB Research Advisory Council total roughly \$8 million, or five per cent of

the current annual expenditure of \$180 million in prevention activities focused on the health of Ontario workers.

In 1996 the Institute underwent its first five-year review. An international panel of reviewers reported on the high quality of the Institute's research program, and provided nine specific recommendations for potential future activity. They suggested broadening the Institute's research portfolio and expanding its scientific staff to accommodate new research directions and disciplines. The panel recommended that the Institute seek greater involvement from diverse stakeholders with interests in work and health when setting its research agenda, in part by building on existing relationships with research users and academic institutions. The Institute was encouraged to seek opportunities for expanded sources of financial support, such as peer-reviewed grants, to supplement funding from the WCB. Finally, the panel emphasized that the Institute must maintain its independence in order to contribute objectively to the protection of workers' health.



## In 2002, the Institute commissioned its second five-year review.

Again, the international panel observed the high quality of the Institute's research, and commended the Institute for creating an attractive, multidisciplinary environment. The panel noted that the Institute had evolved into a mature research organization, earning an impressive international reputation. The review produced 15 recommendations for future activity, which the panel divided into four conceptual categories: Governance; Research; Research Transfer; and Relationships. In terms of Governance, the panel recommended that the Board of Directors assume a greater stewardship role. In the area of Research, the Institute was encouraged to protect and expand its core research, to develop practical applications of its research findings and to make these findings available to stakeholders. Additional funding was identified as a prerequisite for the Institute's expansion into areas of prevention and knowledge support. In terms of Research Transfer, the panel recommended continued contact with Ontario's Health and Safety Associations (HSAs) and other key stakeholders. In the area of Relationships, the panel raised the idea of creating a structural liaison function with the WSIB at the operation level, and suggested that a "partnership division" at the Institute could provide knowledge support to stakeholders on issues not dealt with by core research. Finally, the panel congratulated the Institute

on its careful implementation of the recommendations from the first five-year review.

## Our most significant achievements: 1990-2004

Over time, the Institute has witnessed many of its research and communications objectives mature into tangible achievements. In the following paragraphs we summarize the four achievements of which we are most proud.

### *Expanded funding*

The Institute's maturing research program and the competitive calibre of its scientific staff has attracted a growing base of external funding. As a proportion of the Institute's annual budget, funding from non-WSIB sources grew from 9 per cent in 1998 to 25 per cent in 2004.

### *Research partnerships*

The Institute is committed to collaborating on research activities with workplace stakeholders, and frequently receives requests to partner in research, or to help disseminate ideas at workplaces. In the past five years, the Institute has been involved in research projects at many individual workplaces, and has worked indirectly with many others through joint research projects, including the Union of Needletrades, Industrial & Textile Employees and the Canadian Auto Workers. Workplace organizations ranging from the Ontario Federation of Labour and the Canadian Labour Congress to the Canadian Manufacturers and Exporters Association often invite the Institute to present research findings.

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### **Research program growth**

From the Institute's inception, the Scientific Advisory Committee has endorsed a gradual expansion of our research program, emphasizing a deepening of expertise in areas of comparative advantage. Areas of growth include:

- expanding our clinical research expertise to include occupational neck and upper extremity musculoskeletal disorder problems;
- conducting workplace-based research with a focus on the office environment, the manufacturing sector and the health of health-care workers in the institutional health-care sector;
- strengthening a long-standing expertise in understanding factors responsible for optimal return to work;
- expanding the range of health outcomes under investigation to include the prevention of disability arising from mental health disorders at work;
- focusing on the workplace injury experiences of youth and contingent workers;
- understanding the influence of workers' compensation disability insurance on firm and worker behaviour.

### **Innovation in Knowledge Transfer and Exchange**

The dissemination and application of research results has always been important to the Institute. In 1998, the Institute adopted a formal research transfer program to help make research

evidence accessible and available to stakeholder parties. The Institute was an early innovator among Canadian research organizations in making its research transfer program a core business. A number of Canadian research organizations have since moved to adopt organizational policies and practices that embody the principles of knowledge transfer. The Institute for Work & Health has been active in consulting with these provincial and national organizations to develop optimal approaches to effective and sustained knowledge transfer strategies.

### **Assessing the impact of research**

The power of research to improve workplace practices for preventing and treating work-related morbidity depends on three conditions. First, the research must focus on questions of relevance to workplace parties. Second, the research must be of high quality. Third, knowledge derived from research must be made available to workplace parties who can use it to improve workplace health.

From knowledge creation to research transfer and workplace application, research can help to improve effectiveness and efficiency in the prevention of ill-health and in the treatment and compensation of work-related morbidity.

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Barbara Silverstein, Research Director, SHARP, Washington State Department of Labor & Industries, Washington, USA

## Ergonomic exposure standards: Have we made progress in the past 15 years?

The past 15 years have been marked by a contentious debate over the scientific basis for regulatory action to control work-related musculoskeletal disorders (WMSDs). At present, only two jurisdictions in North America, California and the province of British Columbia, have a regulatory standard for controlling biomechanical exposures that contribute to WMSDs. In late 2000, the U.S. Occupational Safety and Health Administration (OSHA) published an ergonomics regulatory standard for all general industry employers in the U.S., representing some 102 million workers at 6.1 million worksites. But the standard proved controversial, and the Bush administration repealed its scheduled implementation early in 2001. Washington State's Ergonomics Rule was defeated in 2003.

Why is a regulatory standard so contentious? The answer appears to lie in the pervasiveness of the problem, since a regulatory standard could affect job design in all economic sectors. The annual cost of implementing a standard on such a scale would be close to \$4.5 billion, or \$250 per workstation, according to OSHA estimates. Still, that investment could result in savings of \$9.1 billion each year for U.S. companies, or roughly \$27,000 for every WMSD prevented. OSHA estimates that its

ergonomic standard would prevent at least 4.6 million WMSDs between 2000 and 2010. Cost and benefit estimates from employer advocates are less favourable.

Why is ergonomic exposure important? Work-related WMSDs affect more than 2 million workers in North America each year. Over 600,000 of these cases are serious enough to warrant absence from work, and represent nearly 40 per cent of all work-related WMSDs that result in disability. WMSDs are cumulative injuries arising from prolonged exposure to movement repetition, high forces, poor work postures, high contact stress and high vibration to parts of the body. The back, neck, shoulders, arms, elbows, wrists and fingers are particularly at risk. WMSDs vary in severity from mildly painful to disabling.

Studies conducted at the Institute for Work & Health helped to resolve some of the controversy surrounding workplace exposure and WMSDs through the 1990s. Of particular importance is an IWH study that identifies three biomechanical forces on the spine that increase the risk of low back pain: peak shear forces acting perpendicularly to the vertical spinal axis; cumulative vertebral disc compression; and hand forces exerted during job tasks. In testimony to the U.S. Congressional hearings on the OSHA

regulation, IWH Scientist Dr. John Frank concluded: "These findings suggest, when taken in consort with other epidemiological and basic science evidence, that further reductions in these forces on the back, through job redesign, would substantially reduce reports of low back pain to the workplace. Lost-time disability from low back pain would be effectively reduced by ergonomic measures designed to substantially reduce forces acting on the lower back at work."

As we look ahead, controlling adverse biomechanical exposures at work will be our single greatest opportunity to reduce work-related disability. To accomplish this outcome, prevention efforts will need to integrate education, technical consultation services and the clarity of purpose provided by a regulatory standard. An ergonomics standard would require that all employers provide their employees with basic information regarding the signs and symptoms of common WMSDs, how and when to report symptoms and relevant occupational risk factors. It would also require employers to identify musculoskeletal hazards in the workplace along with implementing feasible control measures. Workplace programs for controlling WMSDs would also include attention to management leadership and employee participation in the implementation of workplace programs.



What follows are case studies of Institute research and knowledge transfer activities that we believe have been valuable for our non-research partners. The organization of these activities around four policy areas demonstrates the Institute's commitment to building research partnerships, expanding its research programs and communicating its research findings to appropriate audiences.

### **The prevention of work-related injury and illness**

#### ***The scientific basis for a regulatory policy on workplace biomechanical exposures***

Between 1993 and 1996, the Institute for Work & Health conducted a case-control study of work-related factors that contribute to disabling back injuries among members of the Canadian Auto Workers (CAW) employed at the General Motors Oshawa assembly plant. Designed in collaboration with colleagues at the University of Waterloo, this study was among the first to demonstrate that physical loads in a modern manufacturing operation contribute to the genesis of potentially compensable low-back pain.

In the 1990s, the U.S. Occupational Safety and Health Administration (OSHA) made two separate attempts to establish national ergonomic regulations. In the second of these initiatives, OSHA held public hearings in 2000 to review epidemiological evidence surrounding physical work loads as a

cause for compensable musculoskeletal injuries. The Institute presented research evidence from the General Motors study as testimony at the hearings. According to OSHA staff, Institute panelist Dr. John Frank, along with Dr. Richard Wells and Dr. Niklas Krause (IWH Adjunct Scientists), gave one of the most effective presentations on the scientific basis for a regulatory initiative on ergonomic exposures. While the U.S. has retreated from a regulation that would influence employer practices surrounding the ergonomic design of work, the Institute has helped to establish the scientific basis for limiting ergonomic exposures as a strategy for preventing musculoskeletal disorders.

#### ***Understanding the effectiveness of insurance and regulation in preventing work injury***

In late 2003, the Institute completed a systematic review of empirical research on the effectiveness of insurance policies and regulatory policies in the prevention of work injury. Summarizing more than 50 studies, the review yielded moderate evidence that experience rating in workers' compensation insurance reduces the frequency and/or severity of injuries. The review found only limited evidence that inspections without penalty or enforcement reduced the frequency or severity of workplace injuries. However, the international literature produced strong evidence that the imposition of orders, citations or fines following inspections reduced both the frequency and/or the severity of injuries.

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Walter Eichendorf, Deputy Director General, Hauptverband der gewerblichen Berufsgenossenschaften, Germany

## Interpreting international trends in the reduction of work injury

Over the past two decades, there have been important reductions in rates of compensated work injury in most of the world's developed economies. We are unclear about some of the factors responsible for these declines.

Fundamental changes to the structure and scale of international trade in the past 20 years have introduced a common set of pressures on national labour markets. There is evidence that increased international trade has altered the demand for labour in the advanced economies. For example, low-skilled and low wage employment in sectors such as manufacturing have experienced relatively greater migration to developing countries. Regional trading agreements (EU and NAFTA) have increased the size of common markets and led to harmonized finance, taxation and regulatory regimes. Global economic integration has also encouraged the harmonization and standardization of occupational health and safety regulatory activity. In the EU, for example, the task of setting national regulatory standards has shifted from the national state to the EU Commission. In contrast, the North American trading union has not established a strong supranational regulatory mandate in labour-market policies. Labour and occupational health policy continues to be developed principally at the provincial/state level.

Against this backdrop of increased global trade integration is a policy commitment

from many countries to reform regulatory regimes, moving from specification standards to performance standards. In the area of occupational health and safety, policy innovation has focused on the design of incentives to increase the workplace's recognition of its responsibility to protect worker health.

Many of the world's developed countries have witnessed common trends in workplace health and safety over the past 20 years. A decline in time-loss injury has been observed across most economic sectors. But in general the pattern of declines across most sectors points to the influence of factors that are broadly influencing labour markets.

Developed economies have experienced the greatest employment growth in the small and medium enterprise sector of the economy. This change, consistent with the emergence of a dominant employment role for service sector economic activity, has presented new challenges for prevention and compensation authorities. For example, small firms typically lack the internal management resources to embrace high performance prevention and disability management practices. In addition, small firms often lack necessary knowledge when confronted with unforeseen risks, as with the handling of dangerous substances.

Most economies have seen substantial growth in non-standard work arrangements. Non-standard work refers to

employment arrangements that depart from the norm of full-time, full-year, long-tenure employment. There are concerns that these non-standard employment arrangements may result in less protection from risk of injury and less income protection to workers.

Finally, developed economies have experienced a pair of demographic changes in the composition of the labour market: the increased participation of women in the labour force; and the aging of the workforce. Women first entered the labour force in large numbers in the Nordic economies; but by the end of the 20th century, all developed economies had very high rates of female labour force participation. Most countries have begun to anticipate the implications of an older workforce for the financing of social security programs and are considering policies to support and retain older workers in the labour force.

What remains unclear is the relative importance of changes to industrial structure, employment arrangements and prevention and compensation policies for explaining declines in compensated work injuries over the past 20 years. What does remain clear is the importance of policy efforts to strengthen the capacity of individual workplaces to achieve high performance standards in employee health protection.



Several provincial ministries of labour indicated that the results of this review have been valuable in policy development. Following a 2004 policy review of the inspectorate function, for example, the Ontario Ministry of Labour announced a significant increase in the number of inspectors who audit workplaces for compliance with occupational health and safety standards.

**Evaluating prevention interventions: The Ontario high risk firm initiative**

Nearly 300,000 work-related injuries occur each year in Ontario, about 100,000 of which are serious enough to result in missed work days. While the rate of lost-time injuries (LTI) has declined substantially over the past 15 years, the rate of annual reduction in work injuries has slowed in recent years (see Figure 1). Responding to these trends, the Ontario Ministry of Labour spearheaded the Ontario High Risk Firm Initiative, an integrated, comprehensive approach to workplace health and safety. Under this initiative, the Ontario government has committed to the goal of reducing workplace injuries by 20 per cent over

a four-year period.

The initiative features two core elements: 1) enhanced inspection and enforcement of health and safety systems in Ontario workplaces; and 2) the delivery of education, training and consultation services. The initiative targets Ontario workplaces with the poorest health and safety performance, as indicated by the costs of recent compensation claims. Substantial resources have been allocated to the High Risk Firm Initiative, with approximately \$24 million per year for enhanced inspection services, and \$20-30 million per year for education, training and consulting.

Early in 2005, the Institute for Work & Health was invited to lead in the development of options for an evaluation of the High Risk Firm Initiative. These evaluation options were discussed at a workshop held in Toronto on June 23, 2005 with participation from program staff at the Ministry of Labour, the WSIB and the Health and Safety Associations. At this workshop, Dr. Ben Amick, Dr. Barbara Silverstein and Dr. John Mendeloff participated as external

discussants. The discussants gave strong endorsement of the value of a rigorous evaluation of the Ontario High Risk Firm Initiative. The results of an evaluation providing high quality evidence on the cost effectiveness of regulatory inspection and enforcement and the cost effectiveness of consultation and education services will be exceptionally valuable to occupational health and safety policy development in a great many jurisdictions around the world.

**Evaluating prevention interventions: Patient lifting equipment in health-care institutions**

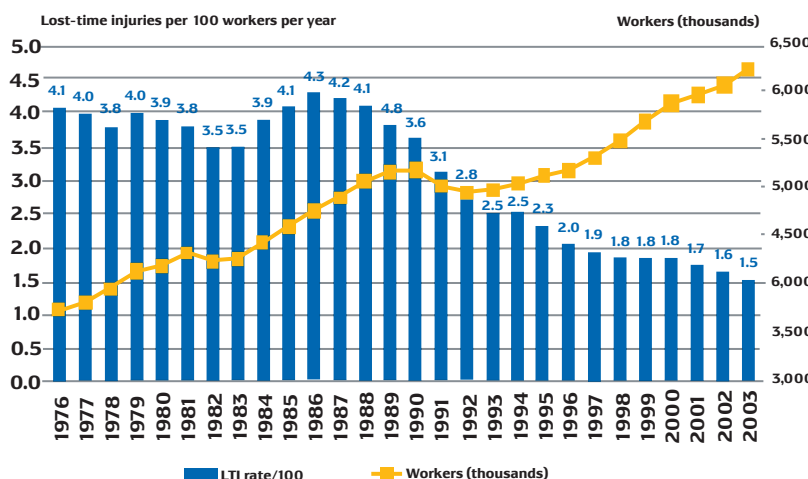
Patient lifting, transferring and repositioning is the leading cause of injury in Ontario's health-care workplaces. In the May 2004 provincial budget, the Government of Ontario announced that it would invest \$60 million in fiscal year 2004/05 for the purchase and installation of 11,000 patient lifts in Ontario health-care institutions. In March 2005, the Institute for Work & Health entered a research agreement with the Ministry of Health and Long Term Care to evaluate the effects of the program.

The evaluation will:

- measure the impact of patient lifts on musculoskeletal function and injury among caregivers;
- measure the impact of patient lifts on caregiver workload;
- measure the quality of training for caregivers;
- assess the economic costs and benefits of patient lift equipment.

The interdisciplinary research team includes members from the Institute for Work & Health, University of Toronto, University of Western Ontario, Toronto Rehabilitation Institute, University of Waterloo and York University. The project will report initial findings in late 2006.

Figure 1: Lost-time injury rate and employment growth in Ontario, 1976-2003



Source: Ontario Ministry of Labour, Occupational Health and Safety Branch

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Claire Bombardier, Senior Scientist, Institute for Work & Health, Toronto, Ontario, Canada

## Evidence-based practice in the management of musculoskeletal disorders

There has been real progress made towards evidence-based practice in the management of musculoskeletal disorders (MSKs) during the last two decades.

The first major advance was the recognition of the need for a common language before we can produce reliable, accurate evidence on which to base decision-making. Until recently, different disciplines often applied different names to the same condition. This lack of a common terminology and a system for classification made it especially hard to study MSKs, and to communicate and share research findings in a meaningful way. We have made strides towards solving this problem in the areas of repetitive strain injury, back pain and neck pain.

We've also seen musculoskeletal disorders become a priority area of research. More scientists are being trained and there has been a tremendous increase in the number and quality of randomized controlled trials that examine the effectiveness of treatment for MSK disorders.

More than ever, busy clinicians and other consumers of evidence need

trusted sources to help them sift through the thousands of studies and trials published each year.

The availability of evidence synthesis—in the form of systematic reviews—is largely due to the Cochrane Collaboration, an international organization comprising 50 review groups, which produces and disseminates systematic reviews of health-care interventions. The Institute for Work & Health is home to the Back Review Group (BRG), which was formed in 1995, to coordinate reviews of primary and secondary prevention and treatment of neck and back pain, and other spinal disorders.

With an established set of criteria and guidelines for conducting a systematic review, a step-by-step approach that helps the reader decide on the quality of the review, the BRG has been instrumental in helping busy clinicians understand the evidence and integrate the evidence more easily into their practice.

Using evidence-based synthesis to create clinical guidelines was recognized early on as a valuable tool to put research into practice. The Institute was involved in the first low-back pain guideline in the early '90s, published by the U.S. Agency for

Health Care Policy and Research (AHCPR). This early use of research evidence in guideline development led to a major shift in how back pain was treated. Prior to the AHCPR guideline, patients with non-specific back pain were told to go home and rest in bed until they felt better. Today's guidelines confirm that to obtain the best outcomes, patients should be told to avoid bed rest and remain as active as possible. This body of evidence provides clinicians with practical information to use in the management of musculoskeletal disorders.

Our remaining challenge is building evidence about effective knowledge transfer and exchange. The Institute is a recognized leader in the field of knowledge transfer—a dedicated approach to sharing knowledge with our stakeholders including clinicians, policy-makers, workplaces and labour unions.

If we want to have an impact, we need to continue to devote part of our research to the strategies that enable successful and ongoing interactions with the clinical community, to break down barriers and to ensure that the evidence-based guidelines and tools we develop influence real life practice.

### **Providing evidence on the effectiveness of prevention interventions**

In recent years, the Institute for Work & Health has strengthened its relations with Prevention System organizations. In discussions with these organizations, we have frequently heard that potential research users often find research evidence inaccessible, difficult to understand and presented in formats that are unsuitable for non-scientific audiences.

To help Prevention System organizations use high-quality research evidence, the Institute proposed establishing a group to conduct systematic reviews. A systematic review distills large amounts of research, often reconciling conflicting results. It begins with a clearly formulated question and uses systematic and explicit methods to identify, select and appraise relevant research, and to collect and analyze data from the research under review.

In March 2004, the Ontario WSIB provided financial support to the Institute to undertake a four-year pilot initiative to conduct systematic reviews of the effectiveness of specific prevention interventions. A central feature of this initiative is the Institute's ongoing consultation with workplace parties to identify suitable subjects for review. Topics identified in these consultations include: the effects of long hours of work on work performance and injury risk; methods for controlling ergonomic and biomechanical exposures in workplaces; and the effectiveness of education and training strategies for the protection of young workers. Many of these topics will be considered for future reviews.

### **Effectiveness of medical care in the treatment of work-related musculoskeletal disorders**

#### **Evaluating treatment interventions**

The Early Claimant Cohort was one of the Institute's first important research projects. The study's primary objective was evaluative; it compared the clinical and functional outcomes for a group of injured workers referred to an intensive medical rehabilitation program known as the Community Clinic program to the experience of workers who did not receive care at the Clinic.

The study findings were clear: Injured workers referred to the Community Clinic program did not have a better prognosis over the recovery period than workers who received care in other settings. On average, injured workers in Community Clinic settings were likely to be absent from work a week longer than workers receiving care in other settings. In addition, the average cost of therapy per claimant in Community Clinics was approximately \$1,000 higher than for workers who experienced a soft-tissue injury of similar severity but did not attend a Community Clinic program. In response to this evidence, the WCB reduced the scale of the Community Clinic program.

### **What works and what doesn't work: Effective clinical care for soft tissue injuries**

The international Cochrane Collaboration is among the most important initiatives in clinical medicine over the past decade. The Cochrane method involves the use of rigorous methods to systematically review research evidence of the effectiveness of clinical practice. Canada's substantial contribution to this international effort includes the work of the Cochrane Collaboration Back Review Group (BRG) at the Institute for Work & Health. The BRG group has helped the Institute to formalize its own methods for systematically reviewing and summarizing large bodies of research evidence.

The Cochrane Back Review Group has seen several direct applications of its work in Ontario. For example, the Group's evidence base informed the clinical practice model for a WSIB demonstration project on a new health-care initiative for the treatment of acute back disorders. In addition, the Group's systematic review infrastructure informed a comprehensive review of the etiology, prognosis and treatment outcomes of chronic pain, commissioned by a special WSIB panel. A number of professional clinical bodies in Ontario have turned to the evidence base produced by the Cochrane Collaboration to support the development of clinical practice guidelines.

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Glenn Pransky, Director, Centre for Disability Research, Liberty Mutual Research Centre, Massachusetts, USA

## Important progress in return to work

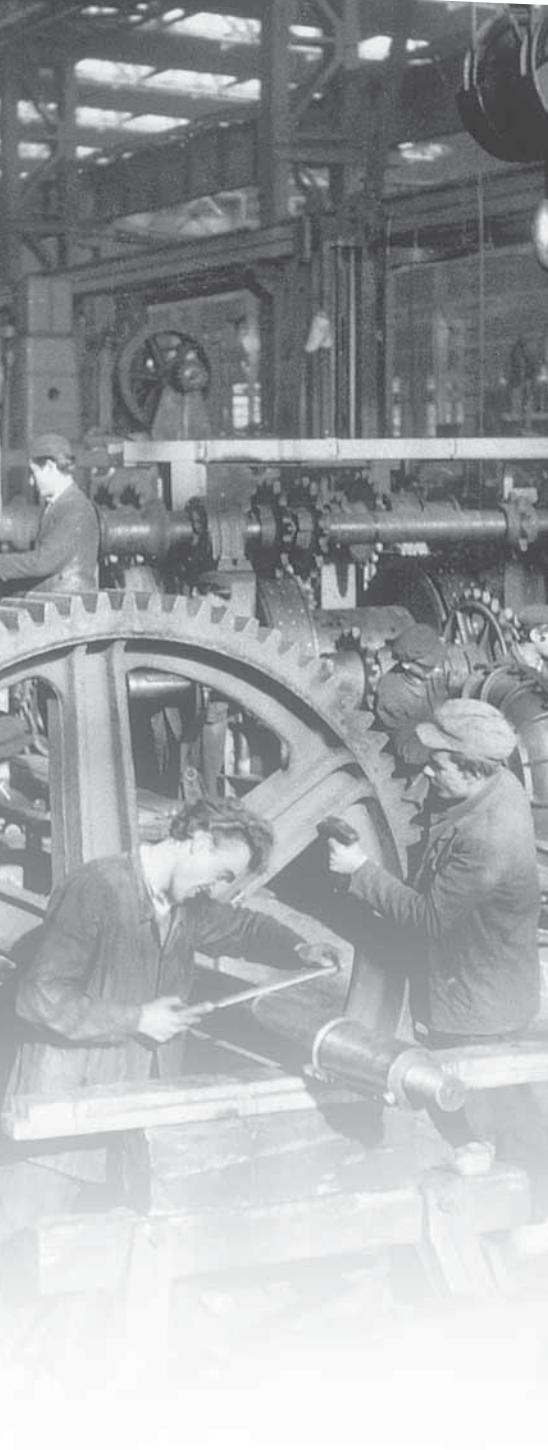
Approaches to reducing the impact of disability following a workplace injury have progressed significantly over the past 15 years. By the early 1990s, workers' compensation agencies across Canada had begun to question the value of providing traditional vocational rehabilitation services for injured workers. These services were expensive, there was evidence that they did not effectively assist injured workers, and there was growing concern that in some instances they extended the period of work disability. The general view was that disability outcomes would improve if workplaces could be influenced to assume more responsibility for timely and safe return to work. In the previous decade in the U.S., there was a broad movement to reform workers' compensation insurance to incorporate experience-rated insurance premiums. This movement was premised on the assumption that workplaces, if given sufficient incentive, would be the most appropriate setting for managing disability and expediting return to work. New laws supporting the employment rights of disabled persons drew further attention to return to work as a responsibility of the workplace. The desire to reduce injuries was the main force behind the restructuring of costs in the U.S., with disability reductions a related but secondary issue.

These changes contributed to progress in shifting responsibility for safe and timely return to work to the policies and practices of individual workplaces. For example, in 1993, only 25 per cent of injured workers in Ontario reported that they had been contacted by their employers with offers of early, accommodated return to work. By 2002, fully 60 per cent of injured workers reported being contacted by their employers with work accommodation offers.

Many factors underpin these achievements. The best workplaces now recognize their ability to manage the many return to work challenges in collaboration with clinical providers and other health and safety partners. Research undertaken at IWH and other organizations shows that among the most important contributions to return to work that a workplace can make is a positive early response followed by continual engagement of the worker. The Institute for Work & Health is among the research groups that have contributed most to the evidence base for key elements of effective return to work practices: early contact with the injured worker, a work accommodation offer, communication between the workplace and the health-care providers, a cooperative labour-management environment and the designation of a return to work coordinator within the workplace.

An important impetus for the past 15 years of progress is growing recognition that the interests of workers and employers generally coincide in benefiting from high quality organizational policies and practices in disability management. Employers have realized there are important economic returns from investments in sustained return to work programs.

As we look ahead, there are still a number of concerns to address. The quality of return to work practices across workplaces remains uneven, and too many workers have inadequate and potentially harmful return to work experiences. The task of designing and delivering return to work programs in small and medium sized enterprises presents significant challenges. The impact of medical care in expediting return to work in MSK remains a source of considerable uncertainty and much disagreement. There is also increasing concern that the management of disability arising from mental health disorders among workers has not progressed to the same degree as the management of MSK conditions. Finally, there will be additional return to work challenges with the increasing proportion of older workers in the labour force. These valuable workers may face significant chronic health problems and will evaluate the challenges of continued participation in the labour market in light of opportunities to retire.



## Managing disability and safely returning injured workers to productive work

### *Optimal return to work outcomes*

The Institute has been committed to researching return to work issues since its foundation. Institute research on the process of functional recovery following a work injury has identified features of clinical and workplace practices that obstruct optimal return to work outcomes. The failure to integrate clinical assessment and therapeutic objectives with workplace strategies for accommodating the needs of injured workers during recovery is one such barrier. Workplaces that do not maintain regular contact with injured workers during the period of disability are also following suboptimal practices. In developing evidence-based principles for optimal disability management, the Institute has contributed to the growing consensus surrounding practices and policies for improving return to work outcomes. Both the International Labour Organization and the National Institute of Disability Management and Research have authored codes of practice that reflect research evidence contributed, in part, by the Institute.

The Institute's scientific and knowledge transfer and exchange staff members are active in supporting the WSIB's current policy development in return to work program delivery. To provide guidelines for effective return to work strategies and to direct

related research in the future, the Institute recently conducted a systematic review of high quality international studies. The review confirmed that return to work interventions are effective in reducing the duration of work disability, wage replacement costs and health-care costs. The review found moderate evidence for the following:

- Three components reduce the duration and associated costs of work disability: early contact with the worker by the workplace; a work accommodation offer; and contact between health-care providers and the workplace;
- Two other return to work components reduce the duration and costs of work disability: ergonomic worksite visits; and the involvement of individuals responsible for return to work coordination;
- Educating supervisors and managers reduces the duration of work disability;
- Labour-management cooperation is associated with shorter duration of work disability. There is limited evidence that people-oriented and safety-committed cultures are associated with shorter duration of work disability.

To date, this is the most comprehensive review of the literature on return to work interventions and processes in the workplace. It provides background knowledge and guidelines regarding return to work strategies for the WSIB, employers, employee assistance programs and unions.

Keith Brown, Director, International Business, PeakCare Inc., Victoria, Australia

## Institution building: The National Commission in the Australian federated state

In many federated states, the responsibility for regulating and enforcing workplace health and safety rests with sub-national levels of government. This is the case in Canada, where provinces have primary jurisdiction for worker health protection and for work disability income protection.

Among developed countries, almost all federated states have strong national institutions that contribute to the coordination of standards and policy development. In this regard, Canada is unique in that it does not have a national occupational health and safety (OHS) institution with a clear mandate to coordinate policy development across provincial jurisdictions. In the 1980s, Australia also lacked a national institution. With the creation of the National Occupational Health and Safety Commission (NOHSC) in 1985, Australia established a national institution that would have a strong effect on occupational health and safety developments in the Australian states. Given its success, NOHSC may be a model worthy of consideration in Canada.

NOHSC is a tripartite statutory body established under federal legislation. The Commission is made up of 18 members,

including the Chairman, CEO, representatives of the Australian state and territorial governments, employees (through the Australian Council of Trade Unions) and employers (through the Australian Chamber of Commerce and Industry). The functions of NOHSC are to provide national leadership for implementing and developing the National Strategy, to improve the prevention of occupational death, injury and disease across Australia and to provide a national forum for the cooperative improvement of OHS prevention efforts. The national standards and other documents that NOHSC develops are advisory in nature. NOHSC does not make or implement legislation or regulation. The annual budget for NOHSC is approximately \$15 million Australian dollars.

NOHSC's achievements have been substantial. Most significantly, perhaps, has been leadership in the development of a National OHS Strategy 2002-2012, which the Workplace Relations Ministers' Council endorsed in May 2002. Members of the Commission developed the Strategy, and it reflects their agreement to share responsibility for continually improving Australia's performance in work-related health and safety.

The National OHS Strategy has declared two targets: to sustain a significant, continual reduction in the incidence of work-related fatalities by at least 20 per cent by 2012; and, to reduce the incidence of workplace injury by at least 40 per cent by 2012.

To achieve these targets, the Strategy focuses on five national priorities:

- reduce high incidence/security risks;
- develop the capacity of business operators and workers to manage OHS effectively;
- prevent occupational disease more effectively;
- eliminate hazards at the design stage; and
- strengthen the capacity of government to influence OHS outcomes.

In 2005, the Australian Government passed new legislation to create the Australian Safety and Compensation Council. The Council will integrate the occupational health and safety focus of NOHSC with an expanded mandate to advance national standards in workers' compensation insurance. This reform reflects international trends to integrate regulatory policy and insurance policy in worker health protection.



## Benefit and revenue policy

### *The British Columbia Royal Commission on workers' compensation*

In the late 1990s, The Institute for Work & Health conducted a series of studies for the British Columbia Royal Commission on Workers' Compensation.

The Institute-sponsored papers had a significant impact on the Commission, according to personal communication from the Commission Chair, Judge Gurmial Singh. The influence of the Institute's work was particularly important in two areas of the Commission's recommendations: the scope of work relatedness in relation to compensable injury and fatality benefit policies. The work conducted for the Royal Commission was subsequently published in a book titled *Injury and the New World of Work* (University of British Columbia Press, 2000).

### *The adequacy and equity of income-loss compensation for seriously injured workers*

In 1990, the Ontario workers' compensation benefit policy for claimants who were awarded a permanent partial disability underwent a series of important changes. Over the past four years, the Institute has completed an original study comparing the adequacy of benefits under the permanent benefit program in place prior to 1990, and the benefit program in place following the 1990 reforms. The study reported that the post-1990 reforms resulted in average beneficiary outcomes that came very close to achieving the policy objective of restoring 90 per cent of pre-injury earnings.

The Institute has disseminated the results of this study to the WSIB and stakeholder communities in Ontario. Policy staff at the WSIB noted that the research has been valuable in confirming the intended achievements of the 1990 legislative change. Recently, the B.C. Workers' Compensation Board invited the Institute to identify options for replicating the study in British Columbia.

### *Assessing the effects of experience rating in Ontario*

Experience rated insurance premiums apply surcharges to firms with more frequent or expensive compensation claim incidence than their economic peers. Firms with less frequent or lower cost claims receive rebates. Experience adjusted premiums are thought to provide firms with financial incentives to reduce the frequency or cost of compensation claims.

To date, there has been limited monitoring of the frequency of intended and unintended consequences of experience rating in Ontario workplaces. In 2004, the WSIB invited the Institute to identify research options that would provide evidence for the outcomes of experience rating in Ontario. The Institute went on to conduct case studies of 90 Ontario workplaces from three economic sectors, developing questions informed by Ontario labour and employer concerns. Informants were asked to discuss the influence of experience rating on workplace practices for preventing injury and occupational illness, and for enhancing disability management (the reduction of disability and disability costs following a work-related injury or illness).

## In closing...

Our purpose in reviewing the history of the Institute's inception, development and research contributions has been to celebrate 15 years of progress in the protection of worker health in Ontario. The Institute's anniversary is also cause for looking ahead, a time when we may restate our mission to identify new opportunities to promote, protect and improve the health of working people. We do this now, after 15 years of growth, with great enthusiasm and confidence in the achievements still to come.



Robert Reville, Research Director, RAND Institute for Civil Justice, California, USA

## Lessons from California in workers' compensation

Approximately three-quarters of a million work-related injuries and illnesses are reported in California each year. Like all North American jurisdictions, California's workers' compensation system embodies an historic bargain struck early in the past century between labour and employers. Workers injured on the job gave up the right to sue their employers for full but uncertain damages under tort liability in exchange for limited but certain benefits under a statutory compensation system. In return, workers receive medical treatment, temporary disability payments until they return to work, rehabilitation benefits and financial compensation for their permanent disabilities.

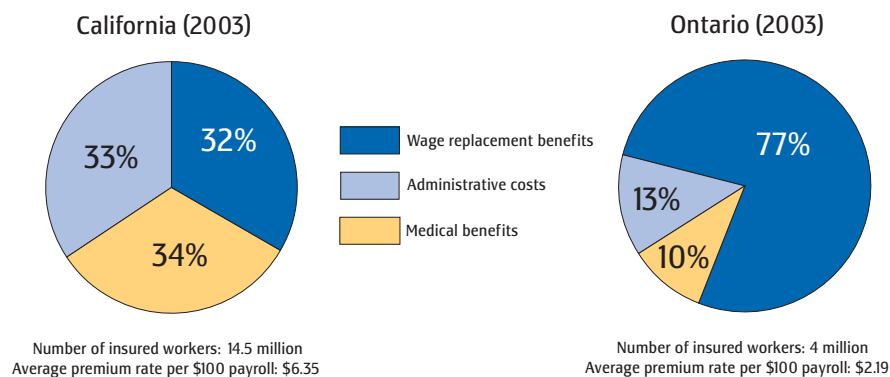
The California workers' compensation system has been in recurrent crisis for the past 15 years. The system has been widely criticized. Injured workers experience much higher permanent disability rates and higher lost earnings among the permanently disabled than other

American states, and benefits replace less than half of these workers' losses. The system relies heavily on legal representation and the involvement of litigation in the resolution of compensation claims, resulting in high administrative costs and delays in claim resolution. Health care costs for the treatment of workers' compensation claimants are higher than in other American states, accounting for approximately 50 per cent of average claim disbursements. Average medical cost per workers' compensation claim more than doubled between 1995 and 2002. These increases appear attributable to both an increase in medical service prices and increases in the intensity of services provided to injured workers. And the private insurance market that provided as much as 70 per cent of coverage in the state has been vulnerable to insolvency, particularly during the period of unregulated minimum premium rates following 1993 reforms. In 2000, insurers' claim costs and expenses amounted to \$1.50 for

every dollar of premium collected. Despite this deteriorated financial position of the insurance industry, insurance premiums paid by employers are exceptionally high at approximately \$6 (U.S.) per \$100 of payroll (2004), making California the most expensive state for average workers' compensation insurance premiums.

What lessons are there in the California experience for workers' compensation agencies in Canada? The California system is marked by high administrative costs, high service intensity (and resulting medical costs) and an adversarial approach to compensation. The result is an extraordinarily high cost system that delivers inadequate benefits to workers and leads to low rates of timely return to work. California has recently adopted reforms and is beginning to show signs of yielding lower costs to employers. Time will tell whether workers will benefit as well.

Figure 2: Workers' Compensation Expenditures



## Auditors' report

We have audited the balance sheet of Institute for Work & Health as at December 31, 2004 and the statements of operations, net assets and cash flow for the year then ended. These financial statements are the responsibility of the organization's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the

accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the organization as at December 31, 2004 and the results of its operations and cash flow for the year then ended in accordance with Canadian generally accepted accounting principles.

*Stern Cohen LLP*

*Chartered Accountants.  
Toronto, Canada.  
February 29, 2005.*



## Statement of Operations

For the year ended December 31,	2004 (\$)	2003 (\$)
Revenue		
Workplace Safety & Insurance Board of Ontario	4,864,232	4,864,324
Other (Note 6a)	1,565,529	901,855
Interest	24,428	25,214
	<b>6,454,189</b>	<b>5,791,393</b>
Expenses		
Salaries and benefits	5,064,854	4,391,474
Travel	141,872	125,125
Supplies and service	122,831	153,083
Occupancy costs	491,259	492,999
Equipment and maintenance	70,237	68,492
Publication and mailing	60,202	60,571
Voice and data communications	39,661	28,624
Staff training	45,633	57,530
Outside consultants (Note 6b)	88,528	190,529
Other	126,264	103,430
Amortization of capital assets	215,642	229,646
Amortization of deferred rent	(42,383)	(41,500)
	<b>6,424,600</b>	<b>5,860,003</b>
Excess (deficiency) of revenue over expenses for the year	<b>29,589</b>	<b>(68,610)</b>
<i>See accompanying notes</i>		

## Statement of Net Assets

For the year ended December 31,

	2004			2003
	INVESTED IN CAPITAL ASSETS	UNRESTRICTED (NOTE 6C)	TOTAL(\$)	TOTAL(\$)
Beginning of year	417,402	261,114	678,516	797,126
Excess (deficiency) of revenue over expenses for the year	(215,642)	245,231	29,589	(68,610)
Investment in capital assets	253,319	(253,319)	—	—
Awards to Foundation (Note 6f)	—	(50,000)	(50,000)	(50,000)
End of year	455,079	203,026	658,105	678,516
<i>See accompanying notes</i>				

## Statement of Cash Flow



For the year ended December 31,	2004(\$)	2003(\$)
Operating activities		
Excess (deficiency) of revenue over expenses for the year	29,589	(68,610)
Items not involving cash		
Amortization of capital assets	215,642	229,646
Amortization of deferred rent	(42,383)	(41,500)
Deferred revenue	(222,645)	(92,884)
Working capital from (required by) operations	(19,797)	26,652
Net change in non-cash working capital balances related to operations	10,885	24,889
Cash from (required by) operations	(8,912)	51,541
Investing activities		
Purchase of capital assets	(253,319)	(63,206)
Short-term investments	(25,859)	(9,769)
	(279,178)	(72,975)
Financing activities		
Awards to Foundation	(50,000)	(50,000)
Change in cash during the year	(338,090)	(71,434)
Cash		
Beginning of year	585,274	656,708
End of year	247,184	585,274
See accompanying notes		

# Balance Sheet

As at December 31,	2004(\$)	2003(\$)
<b>Assets</b>		
<b>Current assets</b>		
Cash	247,184	585,274
Short-term investments (Note 2)	608,559	582,700
Accounts receivable (Note 3)	397,288	165,007
Prepaid expenses and deposits	60,055	95,247
	1,313,086	1,428,228
<b>Capital assets (Note 4)</b>	455,079	417,402
	1,768,165	1,845,630
<b>Liabilities</b>		
<b>Current liabilities</b>		
Accounts payable	211,297	110,038
Deferred revenue (Note 5)	717,706	940,351
Current portion of deferred rent	39,503	37,743
	968,506	1,088,132
<b>Deferred rent</b>	141,554	78,982
	1,110,060	1,167,114
<b>Net Assets</b>		
Invested in capital assets	455,079	417,402
Unrestricted	203,026	261,114
	658,105	678,516
	1,768,165	1,845,630
<b>Other information (Note 6)</b>		

See accompanying notes

Approved on behalf of the Board:


  
 Director Director



# Notes to the financial statements

The Institute for Work & Health was incorporated without share capital on December 20, 1989 as a not-for-profit organization. The Institute is a knowledge-based organization that strives to research and promote prevention of workplace disability, improved treatment, optimal recovery and safe return to work. The Institute is dedicated to research and the transfer of research results into practice in clinical, workplace and policy settings. The Institute is predominantly funded by the Workplace Safety & Insurance Board of Ontario (WSIB) up to the Institute's approved WSIB budget. Other revenues are generated through research activities and certain interest earned.

## 1. Significant accounting policies

### (a) Amortization

Capital assets are stated at cost. Amortization is recorded at rates calculated to charge the cost of the assets to operations over their estimated useful lives. Maintenance and repairs are charged to operations as incurred. Gains and losses on disposals are calculated on the remaining net book value at the time of disposal and included in income.

Amortization is charged to operations on a straight-line basis over the following periods:

Furniture and fixtures	- 5 years
Computer equipment	- 3 years
Leaseholds	- term of the lease

### (b) Revenue recognition

The Institute follows the deferral method of accounting for contributions. Restricted contributions, which are contributions subject to externally imposed criteria that specify the purpose for which the contribution can be used, are recognized as revenue in the year in which related expenses are incurred. Unrestricted contributions, which include contributions from the WSIB, are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.

### (c) Lease inducements

The lease inducements, consisting of cash, are deferred and amortized over the term of the lease.

### (d) Investments

Short-term investments are carried at cost.

## 2. Short-term investments

	2004(\$)	2003(\$)
GICs	225,859	200,000
Ontario Savings Bonds	382,700	382,700
	608,559	582,700
Estimated fair value	623,000	583,000

The GIC earns interest of 4.15% per annum and matures in 2009. The Ontario Savings Bonds yield between 2.5% and 5.5% and mature in 2007 and 2008.

## 3. Accounts receivable

	2004(\$)	2003(\$)
The Foundation for Research and Education in Work & Health Studies	60,448	30,364
Other	336,840	134,643
	397,288	165,007

## 4. Capital Assets

Cost	Accumulated amortization	Net	
		2004 (\$)	2003 (\$)
Furniture & fixtures			
589,715	417,823	171,892	114,533
Computer equipment			
1,055,102	964,136	90,966	85,706
Leaseholds			
503,131	310,910	192,221	217,163
2,147,948	1,692,869	455,079	417,402

## 5. Deferred revenue

The Institute records restricted contributions as deferred revenue until they are expended for the purpose of the contribution.

	2004(\$)	2003(\$)
NIOSH	102,916	139,928
CIHR	229,009	426,192
SSHRC	45,849	11,407
CAN	57,081	-
CHSRF	38,094	46,704
Ontario Ministry of Health	77,771	139,111
WSIB-RAC	75,245	105,033
Other	91,741	71,976
	717,706	940,351

## 6. Other information

## (a) Other revenue

	2004(\$)	2003(\$)
NIOSH	94,304	260,121
CIHR	485,863	294,453
HEALNet	21,693	23,560
SSHRC	33,792	53,980
OCHS	41,743	27,565
Ontario Ministry of Health	116,806	35,519
WSIB-RAC	257,930	46,066
WSIB-Special	254,806	-
University of Saskatchewan	32,473	41,316
University of Toronto	43,198	-
Other	182,921	119,275
	1,565,529	901,855

## (b) Outside consultants

	2004(\$)	2003(\$)
University co-investigators	4,965	23,147
Other project-related services	40,046	83,979
Other services	43,517	83,403
	88,528	190,529

## (c) Unrestricted net assets

Unrestricted net assets are not subject to any conditions which require that they be maintained permanently as endowments or otherwise restrict their use.

	2004(\$)	2003(\$)
Total assets	1,768,165	1,845,630
Invested in capital assets	(455,079)	(417,402)
	1,313,086	1,428,228
Liabilities	(1,110,060)	(1,167,114)
Unrestricted net assets	203,026	261,114

## (d) Commitments

The Institute is committed under a lease for premises which expires July 31, 2009 with annual rents, exclusive of operating costs as follows:

	(\$)
2005	200,000
2006	200,000
2007	200,000
2008	200,000
2009	116,000

## (e) Pension

For those employees of the Institute who are members of the Hospitals of Ontario Pension Plan, a multi-employer defined benefit pension plan, the Institute made \$268,009 contributions to the Plan during the year (2003- \$235,694).

## (f) Awards to foundation

The financial statements include the following balances and transactions with The Foundation for Research and Education in Work & Health Studies.

	2004(\$)	2003(\$)
Transactions		
Awards to Foundation	50,000	50,000
Balances		
Accounts receivable	60,448	30,364

## (g) Financial instruments

The organization's financial instruments consist of cash, short-term investments, accounts receivable, and accounts payable. It is management's opinion that the organization is not exposed to significant interest, currency or credit risks arising from these financial instruments and the fair value of these financial instruments is approximated by their carrying value.

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