



RESEARCH *for the* WORKING WORLD

Annual Report 2000-2001

Research Excellence Advancing Employee Health



INSTITUTE
FOR WORK & HEALTH
INSTITUT DE RECHERCHE
SUR LE TRAVAIL ET
LA SANTÉ

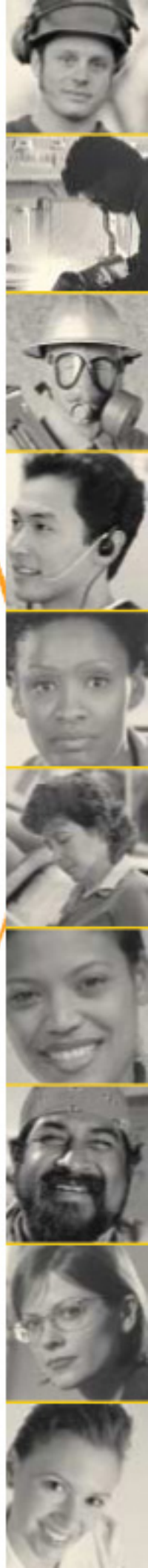


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From the President

The Institute for Work & Health has been through two strategic plans during my eight-year tenure, however the core reason for our existence has always been to conduct leading-edge research that contributes to the health of workers.

To that end, the Institute recognizes the need for research that has practical implications and is conducive to user-friendly knowledge transfer. Over the years, we have built a solid team of expertise in work-health research, especially in work-related musculoskeletal disorders. More recently, we have added research transfer as a core business, and are continuing to build expertise in this new area. We have also built strong partnerships with other research institutions, academic centres, workplace parties, and policy-makers.

Many of our research endeavours have evolved into a suite of studies and evaluation projects, which have furthered our understanding of health in the workplace and contributed to prevention initiatives. One project that builds on this prevention focus was a participatory change study which took place this past year at a manufacturing plant in Tilbury, Ontario, and is profiled in this report. It is not only an example of the evolution of our research, but also an example of a successful partnership that resulted in research in action in the working world.

Measurement of function and disability continues to be an important focus for the Institute. The DASH Outcome Measure is another illustration of a project that has evolved over time and has had practical applications. The DASH assists practition-

ers in measuring disability and symptoms of upper-limb disorders, to inform treatment decisions. This tool is now being used extensively across the province, including, among many others, Lakeridge Health Corporation, Oshawa (formerly Oshawa General Hospital), in the outpatient clinic. We profile this story as well.



It is projects like these and the others highlighted in this report, as well as the nearly 70 talented scientific and research transfer staff, students and fellows, that have made the Institute a leading international research centre on the work-related determinants of health and disability, and evidence-based treatment and management of work-related musculoskeletal disabilities. The

proof is in the remarkable number of awards and research grants conferred on Institute scientists, as well as the contributions to the scientific literature.

The strength of the organization and its partnerships gives me confidence that the time is right for me to make a transition. I do so with the knowledge that this exceptional team of researchers and staff will continue to make a difference to the health of working men and women in Ontario. I would like to express my appreciation to the Board of Directors for their continuous support and guidance and I wish the Institute staff and the new president a most promising future.

A handwritten signature in black ink that reads "James Sullivan".

From the Chair

In my first year as Chair of the Board of Directors for the Institute for Work & Health there have been several significant developments.

Most important, the Institute continued to build a base of research expertise and scholarship that contributes to the health of workers in Ontario and beyond. We have enjoyed the continued support and partnership of the Ontario Workplace Safety & Insurance Board (WSIB).

We were happy to welcome to the Board Dorothy Pringle, a member of the WSIB's Board of Directors and a former Dean of Nursing at the University of Toronto. Dr. Pringle joins with the eminent research, community, business, and union leaders on the Board to provide expert and valuable guidance to the Institute. I would like to thank the Directors for their many contributions and wise counsel over the past year.

The committees of the Board—Executive, and Audit—and the Research Advisory Committee have been very active during the year and a great deal has been accomplished. Given the increased activity and responsibilities of the Board, we appointed a second Vice-Chair. Mark Rochon from the Toronto Rehabilitation Institute joined Marilyn Knox, of Nestlé Canada, as a Vice-Chair in September of 2000.

Our President, Terrence Sullivan, who has led the Institute since 1993, has accepted a new position and will be leaving this summer. We hope he will continue to participate in some research projects in the future. We are very grateful for his leadership and

skill over the past eight years. Under his presidency, the Institute has developed into a leading-edge research centre in work environment and health, one of the few such centres in the world. As a result, we are extremely well positioned for the challenges and opportunities that are on the horizon.



Among these exciting opportunities is a proposed network of centres of research expertise in occupational health and safety sponsored by the WSIB. The Institute is currently engaged in discussions about its role in these centres and what new directions the research program might take as a result.

The Board has struck a Search Committee and we hope to have a new president in place within a few months. In the meantime, Jane Bartram will lead as Interim President. We will be extending our thanks to Terry personally in June for the extraordinary work he has accomplished with all the staff of the Institute.

All of the Directors are looking forward to supporting the new president in the coming years as the Institute continues to make significant contributions through research excellence that advances employee health.

A handwritten signature in black ink, appearing to read 'Terrence Sullivan'.





About the Institute

The Institute for Work & Health was established in 1990 by the Ontario Workplace Safety & Insurance Board (WSIB). The Institute has an arm's-length relationship with the WSIB which remains a major funder. The Institute's research is also funded by a number of competitive research grants and contracts from various granting agencies.

Originally known as the Ontario Workers' Compensation Institute, the Institute was renamed in 1994 to recognize the broad range of activities it had undertaken. Its two core businesses are research and research transfer. It maintains a strong research focus on the fundamental factors that contribute to work-related disability with a view to both

primary and secondary prevention. This is in addition to research into the treatment and management of work-related injury and the examination of broader population-level work issues.

The Institute maintains an extensive set of relationships with other research networks, providers, and organizations. It also has formal affiliations with the University of Toronto, University of Waterloo, and McMaster University. Its association with the university community and its access to workplaces and key data sources have also made it a respected training centre. Scientists and policy-makers from around the world have come to consult and study at the Institute over the years.



Research that Works

If you were to travel back in time when the Institute for Work & Health was a nascent organization known as the Ontario Workers' Compensation Institute, you wouldn't recognize it.

“It was like working in a start-up—we had lots of money (or so it seemed), lots of space, and lots of people with expectations. In trying to meet all those expectations, we were probably a bit scattered and unfocused, especially to external stakeholders,” says Dr. Vivek Goel, who was among the first scientists on board at the Institute when it opened its doors. Goel, who is now Chair of the Department of Health Administration at the University of Toronto, says the Institute has become “...a mature organization with a clear focus and niche in the workers' health and safety scene.”

In 1993, Dr. Terrence Sullivan joined the Institute as its president, and the passage from emergent organization to innovative, successful, and mature research body began. Since those early years the Institute's research program has been organized into comprehensive themes and many significant

studies ensued, including the Early Claimant Cohort study and Ontario Universities Back Pain Study, which have generated important information on the natural history of soft-tissue injuries and low-back pain respectively. Operationally, strategic planning and reporting processes were put in place, and major internal infrastructure has been developed, including the hiring of a first-rate team of scientists and staff.

“What has made the Institute for Work & Health the world's premier research institution in the area of work and health is that it brings together a variety of people from a variety of disciplines, who actually work together collegially and who think about how what they're doing actually matters in the real world of work,” says Dr. Len Syme, the head of the Institute's Research Advisory Committee and Professor Emeritus, School of Public Health at the University of California at Berkeley. This interdisciplinary approach is the only way to bridge the world of academe and the real world of work according to Syme. “The Institute is doing this better than anywhere I know, and the magic behind it is a person like Terry.”

Glen Wright, Chair of the WSIB, which funds the Institute, agrees. “Terry has been a leader in starting the process of integrating research into the health and safety system in Ontario. In addition, he has brought world recognition to the Institute for its quality of research.”

One of the turning points on the international stage was the 4th International Congress on Medical-Legal Aspects of Work Injuries, which the Institute hosted in Toronto in 1999. Dr. Gunther Sokoll, Director General for Hauptverband der gewerblichen Berufsgenossenschaften (HVBG—Federation of Institutions for Statutory Accident Insurance and Prevention) in Germany, says the event was a great success. “The Congress bridged the Atlantic, bringing the heads of North American and European workers’ compensation schemes together to a much larger extent than the previous congresses. Terry opened the door between these two worlds.”

“The scope of the Institute’s research activity in the last few years was avant-garde.”

Dr. Gunther Sokoll

According to Sokoll, the European representatives had well-established ties among each other, but surprisingly did not have much to do with those living on the other side of the ocean. Says Sokoll, “This new professional and personal channel might be one of Terry’s most important, lasting achievements seen from the ‘old world.’”

John Frank, who was the founding director of research at the Institute from 1991 to 1996 and who is returning as a part-time senior scientist, says very early on, Sullivan recognized that there was a need to identify the Institute’s stakeholders and engage them. Under his guidance, the organization established connections with academic centres, all levels

of government, unions, and workers. “One of his legacies is the strong set of relationships built over the years with stakeholder groups from the grass-roots level within Ontario to the international research community. He worked really hard to build these relationships and to make the Institute into the internationally renowned research organization that it is today.”

The international recognition of the Institute is mirrored in the high calibre of international experts who participate in the Institute’s Research Advisory Committee. The committee provides input and direction to the research program. Board Chair Dr. Lorna Marsden says Sullivan has worked with both the Committee and the Board to nurture and build an effective, yet balanced governance structure. “His contribution to the Institute is immeasurable. Today we have a group of Directors, who are very busy people in their own right, who constitute an effective, ‘working board’ that has assisted the Institute on many levels. Terry has helped us achieve that level of functionality.”

After eight years at the helm of the Institute, Sullivan is leaving for a new position at Cancer Care Ontario at the end of June 2001. Although his administrative duties at the Institute are drawing to a close, he may continue to be involved in some future policy research initiatives.

Founding Board Chair Dr. Fraser Mustard says the Institute was started to create a unique base in Canada that could explore the social determinants of health with emphasis on the workplace. “Terry’s outstanding strengths were the depth of his understanding of the subject and his ability to create an environment to sustain the quality of the research and to create effective linkages with all the partners in labour, management, WSIB, universities and other groups that were key for both the support and the transfer of the results of the research. A brilliant and under-recognized accomplishment.”



Partners in Change

The choice to involve employees in workplace design decisions in order to reduce job-related injuries and illness may not be an approach that many North American companies would take. But with the assistance of researchers and the support of the senior management and the union, that approach is working well for The Woodbridge Group (TWG).

The company's Tilbury, Ontario plant, which employs about 200 workers, was involved in a participatory change process with researchers from the University of Waterloo's (UWO) Faculty of Applied Health Sciences and the Institute from 1999–2000. The plant's main product is Enerflex, a hard, impact-resistant moulded foam used in motorized vehicles to increase occupant safety.

Heather Harvey, TWG's Director of Health, Safety and Environment Worldwide, says the plant injury rates had been continuing to dramatically decline. However, the proportion that were work-related mus-

culoskeletal disorders (WMSDs) and injuries, such as strains and sprains, wasn't changing. "Enerflex is a growing business and we wanted practical applications that would reduce injuries and illnesses in our current plants and in our new plant designs," she says.

TWG agreed to be involved in a research project to implement and evaluate a participatory ergonomics change process. The project was headed up by Richard Wells, Robert Norman, and Mardy Frazer of UWO. Wells is also an adjunct scientist at the Institute and Norman is a member of the Institute's Research Advisory Committee. The project was supported by the Canadian Auto Workers, and funded by WSIB, HEALNet, and the Institute.

"The project was a natural evolution of a longstanding partnership with the automotive industry, which began with the Ontario Universities Back Pain Study in the early '90s," says Donald Cole, a senior scientist at the Institute and a co-investigator. "That project, and subsequent studies, gave us a better understanding of the risk factors associated with WMSDs.

According to Wells, the next step was to move beyond discovery and try to change these factors.

“Morale’s gone up... We were skeptical at first about the Ergonomic Team...it surprised us. It’s good. It’s really good.”
Tilbury plant employee.

“We wanted to address those risk factors by placing workers at the centre of the change process.”

Norman, a professor of ergonomics and head of the WSIB’s Research Advisory Council says the earlier research had provided evidence that the different variables—psychosocial, biomechanical and to a smaller extent personal factors—all have an impact on injuries and illness. “You must understand how these so-called

risk factors interact within the context of the workplace’s corporate culture, before it is possible to knowledgeably intervene to reduce injury risk while maintaining production schedules.”

At the Tilbury plant, the research team took various measures of the workers’ physical load, pain, effort, and the company’s psychosocial environment. A cross-functional change team including hourly, salaried, and corporate employees was created. One of the plant’s two Enerflex production lines underwent the change process; the other line was set up as a control group. The team oversaw more than 20 changes to work design.

Although there was skepticism at the beginning, Harvey thinks the process worked. Overall, workers felt the change process made their jobs easier, safer, and less tiring. Morale and communication were improved. “The combination of employees and managers on the team, who were trained at the outset, who were involved in a discussion of the objec-

tives, and who had the authority to involve others affected by a particular issue to develop prototypes for example, gave everyone at the plant ownership. Everyone affected was satisfied that the end change was the right one.”

In addition to reduced pain among workers, Wells points out other successes. Those working on the control line saw the benefits realized by their co-workers, and requested similar changes long before the project was complete. As well, TWG engineers approached the research team to look at a new design for their conveyance system, one of the fundamental components in the production of Enerflex. It was the one component the team was told at the start of the project could not be changed, although it had been identified as causing workers to overreach.

Harvey feels the change process and enthusiasm is sustainable, mainly because of the process used. The development by the Waterloo team of the Change Implementation Blueprint booklet that documents the process for an effective intervention, will be used to begin a similar change process in TWG’s Whitby operation, and the company plans to share it worldwide.

Sustainability is a question Wells and his co-investigators hope to answer shortly when they go back to Tilbury to follow up on the impact of the project. In the meantime, the research is far from over. “Our research has taken us from assessing a single workstation to a process at a single plant to several plants within an organization. Our next step, which is in line with the Institute’s vision, is to go to a number of plants within a given sector.”



the interdisciplinary research team

University of Waterloo Richard Wells, Mardy Frazer, Lawrence Brawley, Robert Kerton, Andrew Laing, Robert Norman, Nancy Theberge, Patrick Neumann **Institute for Work & Health** Donald Cole, Mickey Kerr, Harry Shannon, Sue Ferrier, Michael Swift, Lori Greco, John Frank **The Woodbridge Group** Dan Dubblestyn, Ron Barr, Ernie Chapados, Mike Filiault, Ratan Agrawal, Annette Ashley, Dave Murray, Kim Bartlett, Lacey Dupuis, Shea Ricca



Practical Tools at Work

In a world of evidence-based practice, clinicians are increasingly on the lookout for practical, research-based tools to assist them in their practice. Two years ago, therapists at Lakeridge Health Corporation's five outpatient services locations began a search for a tool they could use to effectively assess and measure outcomes for patients with disabilities of the upper extremities. They found what they were looking for in the DASH (Disabilities of the Arm, Shoulder and Hand) Outcome Measure.

Leslie Kennedy, a physiotherapist at the corporation's Oshawa site, says they researched various measures, but the DASH was a tool that was already established, it had been validated in a number of studies, and it was easy to use. "We were using a different scale a few years back but we found it very awkward, and the patients had difficulties with it as well. The DASH gave us a more subjective outcome from the patient's view, which seemed to meld very nicely with our objective measurement needs, including range of motion and strength."

Development of the DASH in the mid to late 1990s was a collaborative effort of scientists at the Institute and the American Academy of Orthopaedic Surgeons. The thirty-item questionnaire includes queries about physical function, symptoms, and social/role function. It was designed to capture the level of disability from disorders affecting any part of the upper limb. Prior to its development, clinicians had to use different questionnaires for shoulder, wrist or elbow problems.

There has been ongoing interest in the DASH from clinicians and researchers from around the world. A researcher who conducted a validation study of the instrument in Sweden, also had it officially translated into Swedish. The DASH is available for download from the Web site (www.iwh.on.ca) and a link to the Swedish version is provided. The Institute has about 725 registered DASH users.

"I personally find the DASH very useful. I know the rest of my group in the hand therapy area do too," says Kennedy. A large majority of her patients have work-related injuries that range from a simple frac-

ture to a crush injury, from dislocations and sprains to amputations and replantations. She, along with another physiotherapist and two occupational therapists, specializes in the assessment, treatment and management of hand injuries and medical conditions. “We first piloted the DASH in the hand program a little over a year ago and quickly expanded it to the rest of the clinic for assessment of all upper extremity problems. Now it has become part of our routine,” she says.

Every patient who has an upper-extremity problem and a command of the English language completes the DASH on their first visit to the Lakeridge clinics, and repeats the assessment on their last visit (discharge) to determine how they have improved over time. That accounts for about 95 per cent of the patients with upper extremity disorders. Patients who don’t return for their final visit receive a DASH, along with a self-addressed envelope, by mail and are asked to complete and return the questionnaire.

“...understanding the progress in therapy is critical. The DASH helps us do this.”

Leslie Kennedy

With few exceptions, Kennedy says most patients complete the questionnaire and find it helpful. “We’ve made a few administrative-type additions to the front of the DASH form to help us ensure that what we get back is useful. For example, we found that many patients were not reading all the way down to the

instructions on the first page and therefore they had to do the questionnaire again, so we now highlight the instructions, both visually and orally,” she says.

The Institute researchers have received other feedback about the DASH and are taking the comments into consideration as they prepare a revised version of the DASH manual. Dr. Dorcas Beaton, an adjunct scientist at the Institute and researcher at St. Michael’s Hospital in Toronto, who is one of the developers of the DASH, expects the new version to be released in 2002. “We’re incorporating the feedback we’ve received, as well as making other evidence-based changes and updates that are required.”

The team at Lakeridge also uses the DASH for patients undergoing elective reconstructive procedures. An assessment is done before the procedure, and then an interim DASH is completed after the surgery and a course of therapy. At the time of discharge, they do a final DASH. This provides three time-points to compare progress.

“We spend a lot of time educating the patient so they can understand the mechanics of their injury, how surgery may have helped, and the stages in recovery. We have various visual aids that help us educate them. But understanding the progress in therapy is critical and maybe even more so in hand therapy. The DASH helps us do this.”

She points to a recent case of a dental assistant who had a ligament repair in her thumb and eventually went back to work full time. After completing her follow-up DASH, Kennedy pulled out the original score and compared them. The young woman was quite proud of her improvement. “The DASH is very valuable. It does more than measure range of motion when they start and when they finish, or show how pinch strength has improved over time. With it I can see, and maybe more importantly the patient can see, how they have improved subjectively and their recovery has progressed over time.”



Focus on Research

The research program at the Institute has grown significantly over this past year and its accomplishments were numerous.

Among the milestones reached in 2000: funding awards from competitive granting agencies in excess of \$700,000; a record 24 papers published in peer-reviewed journals; and over 30 papers pending for publication in 2001.

The Research Transfer department's dissemination and communication efforts have engaged our key stakeholder populations: clinicians, workplace parties and policy-makers. These connections help ensure our research is accessible and utilized in the real world.

The Institute's research is grouped into four areas: Health Services Research, Monitoring & Evaluation; Workplace Studies; Population/Workforce Studies; and Data and Information Systems. Although the areas are administratively distinct, there is significant crossover. The Return-to-Work Studies program and activities of the Research Transfer department are examples of this collaboration.

Health Services Research, Monitoring and Evaluation

Research and products in this area are targeted primarily at a clinical audience. Its three research foci are: instrument/measurement research, evidence-based practice, and primary research.

One of the area's major accomplishments this year was a special edition of *Spine*, highlighting outcome measures for low-back pain, edited by Senior Scientist Dr. Claire Bombardier. She brought together an international team of experts, including the developers of some commonly used outcome measures, to analyze this relatively new and rapidly evolving methodology. This unique issue contained the summary of their work and recommends a core set of measures for the study of spinal disorders—an important resource for clinicians and researchers who wish to develop their own outcome studies.

Housed within this area is the Cochrane Collaboration Back Review Group (BRG), one of 50 centres worldwide dedicated to preparing and disseminating the best evidence for health-care treatment. The BRG coordinates international literature reviews on the treatment of neck and back pain and



other spinal disorders. Five of the BRG's reviews were published in *Spine*. One review, dispelling the myth that bed rest is an effective treatment for low-back pain, received front-page coverage in a Canadian national daily newspaper. The BRG also developed a database of all published clinical trials on back pain to make the overwhelming amount of literature on this condition more easily accessible.

On the horizon for this area are an international task force on neck pain, the publication of results on the impact of choice of care provider on health outcomes after whiplash injury by Associate Scientist Pierre Côté, and production of the second edition of *The DASH Outcome Measure User's Manual*.

Workplace Studies

This research area focuses on determining the causes of work-related health problems and developing effective interventions aimed at improving health outcomes in specific workplace settings.

One very fruitful research investment at the Institute has been The Toronto Star-Southern Ontario Newspaper Guild (Star-SONG) study. This broad suite of related studies has substantially increased our understanding of work-related musculoskeletal disorders of the arm, shoulder and hand.

"The ergonomic handbook resulting from our research collaboration has been extremely well received."

Jonathan Eaton, UNITE

In 2000 this study shifted into the intervention and evaluation phases.

Gail Hepburn, an organizational psychologist, joined this area in 2000 as an associate scientist and accepted a two-year term as area manager. Her research focus is organizational justice and work/family balance.

Scientist Mickey Kerr and 1998–2000 Mustard Fellow

Mieke Koehoorn received funding for projects involving health-care workers. Kerr received a grant from the Canadian Health Services Research Foundation to study the health of nurses in Canada

while funding from the Canadian Institutes of Health Research will enable Koehoorn to continue her work on the health of health-care workers.

Phase two of a study examining repetitive strain injuries in the garment industry received funding from the WSIB's Research Advisory Council. This collaborative project is jointly headed by Richard Wells, a professor at the University of Waterloo (and Institute adjunct scientist), and Jonathan Eaton of the Union of Needletrades, Industrial and Textile Employees (UNITE). Mickey Kerr and Institute Research Associate Sue Ferrier are part of the team. Phase one produced



two products published by UNITE last year: a detailed report on common ergonomic problems in the clothing industry and a handbook, which provides solutions for those problems. Both are available on the Institute's Web site.

With the rising trend toward temporary and contract jobs, and self-employment, there is a need to examine health and safety issues among these workers. Associate Scientist Michael Polanyi was part of a successful multi-university proposal (Community-University Research Alliance program funded by SSHRC) to study the health and well-being of this contingent workforce.

Population/ Workforce Studies (PWS)

In 2000, PWS made significant inroads with its research program and a number of papers were published in peer-reviewed journals. The area has two broad themes: labour-market experiences and their impact on health and human development consequences; and disability compensation systems and their behavioural consequences for stakeholders. The research conducted in this area is of particular interest to policy-makers and legislators.

The results of Scientist John Lavis' study examining work-related population health indicators appeared in the *Canadian Journal of Public Health*. The findings support the use of some routinely collected health indicators as predictors of health including rates of unemployment, long-term unemployment, and permanent layoff.

Funding from the Canadian Population Health Initiative enabled the area to pursue analytical projects using surveys from Statistics Canada. Scientific Director Cameron Mustard led a study examining occupational hierarchy as a determinant of decline in perceived health status. Scientist Curtis Breslin, a psychologist and a new addition to the Institute in 2000, initiated several projects on the effects of unemployment on mental health among youth and the association between part-time employment and substance use among young adults.

Several projects under the second research theme were developed. Two papers were published from a project entitled "Disability Expenditures by Public Disability Programs in Canada"—one in *Canadian Public Policy* and another in the *Canadian Medical Association Journal*. Scientist Jennifer Payne made significant advances in her analysis of health care use by injured workers with soft-tissue injuries in Ontario.

The work of Associate Scientist Emile Tompa's included a project on disability constructs, a systematic review of disability compensation system design features, and a new project on permanent disability and income sources post-injury.



Return-to-Work

Over the past year, the Return-to-Work portfolio has emerged as a significant research area at the Institute. With a team comprising Institute researchers and external consultants, Scientist Renée-Louise Franche has begun to consolidate the Institute's main research priorities for this area. International researchers knowledgeable in the return-to-work field have provided input to ensure

that the Institute's objectives are on track, and relevant to local and international trends.

The Return-to-Work team has a wide range of issues in its portfolio. They include: the development of analytic methods to estimate the duration of work disability; the measurement of change in functional status; and the work on perceptions of barriers to returning to work among people with HIV/AIDS.

Over the next few years, the return-to-work research agenda will focus on the determinants and sustainability of return-to-work. Workplace, policy, health care, and individual factors that have an impact on the effectiveness of return-to-work strategies will be studied within the current policy context, with an emphasis on workplace independence.

Return-to-Work has emerged as a significant research area at the Institute.

Special attention will also be devoted to address the interpersonal dimension of returning to work. Return-to-work outcomes will be further expanded to include: type and conditions of work when returning to work, meaningfulness and productivity of work, work role quality, and physical and mental health.

Data and Information Systems

This area provides statistical analysis, database management, and systems and library support across the Institute's research areas. By working closely with the other research areas in the planning cycle, this area maps out upcoming work requirements and is the methodological underpinning of much of the research conducted at the Institute.

Over the past year, the area provided analysis on a number of key Institute projects, including Mickey Kerr's nursing study and the UNITE project, as well as a clinical profile of cases in a work site study of low-back pain. This area's growing facility with WSIB data sources has supported numerous research projects in other areas.

The library continues to enhance a wide range of research initiatives by retrieving and maintaining information for its collection. The library also plays an integral role in the collection of systematic

"I believe the Institute's presence was a necessary catalyst to increase the rate of change."

A representative from one of three companies involved in a Research Transfer initiative

reviews for the Cochrane Back Review Group as well as for other researchers.

A database application that is being developed to house the many questionnaires and surveys that assist researchers with their studies promises to be a valuable resource. The database will hold the instruments, information about their origins and statistical properties, and their use and performance in Institute projects.

Research Transfer

One of two core businesses at the Institute, Research Transfer (RT) initiates the transfer of research knowledge to external target audiences. In 2000, RT continued to develop its capacity, investigated new ways to transfer messages, and developed new thematic messages that were taken to our key stakeholders.

One thematic message focused on the treatment and management of acute- and sub-acute low-back pain. Several projects were initiated to develop channels for delivering this message to clinical and WSIB audiences. Another message, developed in collaboration with the Workplace Studies area, focused on the need for balance between physical and psychosocial

factors when examining both the causes of soft-tissue injuries and the indicators for a healthy workplace. This project targeted three work sites in three phases: message preparation; intensive engagement with work site decision-makers; and evaluation.

Supporting both research and research transfer, the communications area activities included the refinement of several products. Implementation of a Web site plan, detailing the introduction of new interactive features, has enhanced the Institute's online presence. The corporate newsletter, *At Work*, continues to provide key information on Institute activities and research. Providing information and responding to requests from key stakeholders and the general public are also important functions within communications. In 2000, these requests rose by eight per cent over 1999. As well, the Institute's Membership Program provides information and services to its members, including workers' compensation boards, government ministries, and individuals, both nationally and internationally.

In the coming year, Research Transfer will continue to explore new and effective ways to transfer knowledge to key audiences. This will be achieved partially by linkages with other transfer "practitioners" across the country. The department has been involved in several conferences about knowledge and research transfer, which have paved the way to build a national RT network.





Academic Links

The Institute's affiliation with the university community, combined with a broad complement of student researchers and the Mustard Fellowship program, enhances and supports the Institute's research program and initiatives.

The Institute has formal connections with three universities: University of Toronto, University of Waterloo, and McMaster University. Plans are under way for similar relationships with other Canadian universities.

All of our scientific staff have teaching responsibilities within the university community and many hold cross-appointments with university faculties and departments in a broad range of disciplines. These include: epidemiology, biostatistics, health administration, psychiatry, public health sciences, economics, medicine, clinical and organizational psychology, and rehabilitation sciences. These connections provide us with the opportunity to share ideas and information about our research with colleagues and students, and foster relationships and research partnerships with other scientists.

Graduate Student Researchers

The Institute's links to the university community, its leading-edge research program, as well as access to workplaces and key sources of data have made it a fertile and well-respected advanced training centre for students pursuing careers in work and health research. This past year, ten graduate students who are up-and-coming researchers worked at the Institute.

Students receive guidance and mentoring from scientific staff, participate in projects, and gain practical work experience. Under the supervision of an Institute scientist, a student may take the lead on a research project that typically results in the development of his/her thesis.

Many graduate students have received student fellowships from national granting agencies such as the Canadian Institutes of Health Research (CIHR), the National Health and Research Development Program and the Medical Research Council of Canada. Several students have also won awards and distinctions from other organizations recognizing their contributions to research. This year, Pierre



Côté and Jill Hayden were named to the top 20 list of chiropractors under 40 by *Chiropractic Business Magazine*. Another student, Jacob Etches, was

“The research culture and infrastructure, as well as the strong mentoring I receive from the scientists, make the Institute an ideal learning environment.”

Jacob Etches

recently awarded first prize at the University of Toronto’s Community Health Student Research Competition.

“The research culture and infrastructure, as well as the strong mentoring I receive from the scientists, make the Institute an ideal learning environment,” says Etches, who recently defended his Masters thesis in the social epidemiology field.

Some former students have gone on to pursue their research interests in organizations such as the

Neuromusculoskeletal Program at Toronto’s St. Michael’s Hospital, Statistics Canada, and Saskatoon’s Royal University Hospital. Over the past 10 years, more than 30 students have received training at the Institute.

These future researchers enable the Institute to build capacity and solidify relationships within the larger research community, today and in the future.

Mustard Fellowship in Work Environment and Health

Named in honour of the first chair of the Institute’s Board, Dr. J. Fraser Mustard, the Mustard Fellowship was established in 1995 to develop exceptional researchers in the area of work and health. The two-year post-doctoral fellowship is awarded to a candidate after a competitive application process.

In 2001, a new Mustard Fellow was appointed. Alina Gildiner recently completed her doctorate in health policy at University of Toronto’s Department of Health Administration. She examined the politics of how public and private roles in the rehabilitation sector have been reshaped since 1985 and their implications for future policy-making.

“While at the Institute, I hope to develop my research interests in comparative historical analysis of rehabilitation policy and its implications for those who are injured at work,” Dr. Gildiner says.

Gildiner was a clinical physiotherapist with a specialty in musculoskeletal injury before moving to rehabilitation consulting.

Mieke Koehoorn, the outgoing Mustard Fellow, is wrapping up her official tenure and has accepted a research position at the University of British Columbia. She will continue her association with the Institute as an Associate Scientist. Her primary research examines the health of health-care workers. Her projects have investigated patterns of health-care utilization among health-care workers, organizational characteristics contributing to employee health and risk factors for musculoskeletal injuries within the health-care sector.

A participant at several key stakeholder conferences, Koehoorn presented her research findings in the WSIB/IWH Clinical Grand Rounds series and at the annual International Accident Prevention Association trade show. She will also be presenting the results of her fellowship work at the upcoming Congress of Epidemiology in Toronto and the 4th International Scientific Conference on Prevention of Work-Related Musculoskeletal Disorders in Amsterdam.



Auditors' Report

We have audited the balance sheet of Institute for Work & Health as at December 31, 2000 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 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, 2000 and the results of its operations and cash flow for the year then ended in accordance with generally accepted accounting principles.

Stern Cohen LLP

Chartered Accountants.
Toronto, Canada.
February 15, 2001.

STATEMENT OF OPERATIONS

For the year ended December 31,	2000 (\$)	1999 (\$)
Revenue		
Workplace Safety and Insurance Board of Ontario	4,499,778	4,498,622
Interest	45,130	34,072
Other (Note 4a)	860,246	1,092,334
	5,405,154	5,625,028
Expenses		
Salaries and benefits	3,777,633	3,234,119
Travel	134,652	325,604
Supplies and service	126,848	147,659
Occupancy costs	386,866	292,605
Equipment and maintenance	65,649	125,862
Publication and mailing	160,454	261,823
Voice and data communications	29,871	31,316
Staff training	62,784	67,416
Outside consultants	127,152	504,333
Other	79,429	160,936
Capital assets amortization	186,613	174,633
	5,137,951	5,326,306
Excess of revenue over expenses for the year	267,203	298,722

STATEMENT OF NET ASSETS

For the year ended December 31,	2000			1999
	INVESTED IN CAPITAL ASSETS	UNRESTRICTED (NOTE 4B)	TOTAL (\$)	TOTAL (\$)
Beginning of year	320,791	297,758	618,549	453,545
Excess (deficiency) of revenue over expenses for the year	(186,613)	453,816	267,203	298,722
Investment in capital assets	179,861	(179,861)	—	—
Awards to Foundation (Note 4e)	—	(120,000)	(120,000)	(133,718)
End of year	314,039	451,713	765,752	618,549

STATEMENT OF CASH FLOW

For the year ended December 31,	2000 (\$)	1999 (\$)
Operating activities		
Excess of revenue over expenses for the year	267,203	298,722
Items not involving cash		
Amortization of capital assets	186,613	174,633
Amortization of lease inducements	(68,280)	(68,280)
Deferred revenue	(55,231)	(88,176)
Working capital from operations	330,305	316,899
Net change in non-cash working capital balances related to operations	(6,046)	22,161
Cash from operations	324,259	339,060
Investing activities		
Purchase of capital assets	(179,861)	(236,996)
Short-term investments	(21,143)	(320,949)
	(201,004)	(557,945)
Financing activities		
Awards to Foundation	(120,000)	(133,718)
Change in cash during the year	3,255	(352,603)
Cash		
Beginning of year	371,655	724,258
End of year	374,910	371,655



BALANCE SHEET

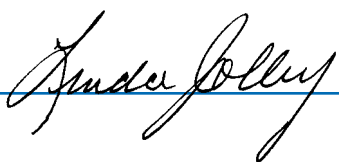
Incorporated under the laws of Ontario

As at December 31,	2000 (\$)	1999 (\$)
Assets		
Current assets		
Cash	374,910	371,655
Short-term investments	649,446	628,303
Accounts receivable - related foundation	65,225	70,579
- other	78,679	94,797
Prepaid expenses and deposits	10,287	15,395
	1,178,547	1,180,729
Capital assets (Note 2)	314,039	320,791
	1,492,586	1,501,520
Liabilities		
Current liabilities		
Accounts payable	150,245	181,715
Deferred revenue (Note 3)	519,575	574,806
Due to Workplace Safety and Insurance Board of Ontario	222	1,378
Current portion of lease inducement	56,792	68,280
	726,834	826,179
Lease inducement	—	56,792
	726,834	882,971
Net Assets		
Invested in capital assets	314,039	320,791
Unrestricted	451,713	297,758
	765,752	618,549
	1,492,586	1,501,520
Other information (Note 4) See accompanying notes.		

Approved on behalf of the Board:



Director



Director

Notes 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 and Insurance Board of Ontario (WSIB) up to the Institute's approval 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) Investments

Short-term investments are carried at the lower of cost or market.

(d) Lease inducements

The lease inducements, consisting of cash and rent free periods, is deferred and amortized over the term of the lease.

2. Capital assets

2. Capital Assets	Cost	Accumulated amortization	Net	
			2000 (\$)	1999 (\$)
Furniture and fixtures	275,097	215,860	59,237	82,201
Computer equipment	781,064	540,696	240,368	174,575
Leaseholds	308,394	293,960	14,434	64,015
	1,364,555	1,050,516	314,039	320,791

3. Deferred revenue

3. Deferred Revenue	2000 (\$)	1999 (\$)
NIOSH	182,893	50,127
HEALNet	61,366	167,259
HRDC	48,184	2,576
Sask Cohort - WAD	48,778	50,902
NPHI	18,821	47,219
Other	159,533	256,723
	519,575	574,806

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

4. Other information

(a) Other revenue

(b) 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 (See table 4b).

(c) Commitments

The Institute is committed under leases for premises which expires August 2001 with annual rents,

exclusive of operating costs, as follows:

2001 (\$) 141,000

(d) Pension

For those employees of the Institute who are members of the Hospital of Ontario Pension Plan, a multi-employer final average payment contributory pension plans, the Institute made contributions to the Plan during the year amounting to \$77,791 (1999 - \$60,973).

(e) Related party transactions

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

These transactions and balances are measured at the exchange amount, which is the amount of consideration established and agreed to by the related parties.

4(a) Other revenue	2000 (\$)	1999 (\$)
NIOSH	98,098	—
HEALNet	140,709	81,461
NPHI	98,398	64,794
OIC	115,729	120,839
Work Ready	11,135	85,108
NHRDP	58,132	5,319
HRDC	39,722	99,237
Congress registration	—	320,116
Other	298,323	315,460
	860,246	1,092,334

4(b) Unres. net assets	2000 (\$)	1999 (\$)
Total Assets	1,492,586	1,501,520
Invested in Capital Assets	(314,039)	(320,791)
	1,178,547	1,180,729
Liabilities	(726,834)	(882,971)
Unrestricted Net Assets	451,713	297,758

Subsequent to year-end the Institute awarded \$116,000 to the Foundation. The award was made from the Institute's surplus which had accumulated from revenues earned to December 31, 2000.

(f) Commitments and contingencies

The Institute has entered into certain multi-year contracts with various professionals for research services. The contracts provide for fixed annual payment amounts along with certain provisions for early termination for such contracts. If these contracts were to be terminated with sufficient notice, management's estimate of the liability is approximately \$500,000. The Institute believes that early termination of such contracts is unlikely.

(g) Investments

At December 31, 2000 the cost of short-term investments approximated market value.

(h) Financial instruments

The organization's financial instruments consist of short-term investments, accounts receivable and accounts payable. Unless otherwise noted, it is management's opinion that the organization is not exposed to significant interest, currency or credit risks arising from these financial instruments.

4(e)	2000 (\$)	1999 (\$)
Transactions		
Awards to Foundation	120,000	133,718
Balances		
Accounts receivable	65,225	70,579

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Institute for Work & Health
481 University Ave., Suite 800
Toronto, ON M5G 2E9

Telephone: 416.927.2027
Facsimile: 416.927.4167
E-mail: info@iwh.on.ca
Web: www.iwh.on.ca

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