

at work

Information on workplace research from the **Institute for Work & Health**

This Issue

For Researchers

We must understand “the reality of the workplace”

Meet Dr. Philip Bigelow

For Policy-Makers

Injury rates would drop sharply if some workplaces did as well as others

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Ontario could see a dramatic decline in workplace injuries if companies within each industry sector were able to match the injury rates of their better performing peers.

The improvement could result in more than a 40 per cent drop in the total number of lost-time claims. That translates to about 149,000 fewer work-related injuries over a four-year period, or about 37,000 each year, according to a recently published study by Institute adjunct scientist Dr. Harry Shannon and research associate Marjan Vidmar.

One might expect certain sectors to be more hazardous and have much higher rates of injuries than others—for example, workers in heavy construction and forestry are more likely to experience higher rates of injury than those employed in the commercial and retail sectors.

But there’s evidence that even within sectors, some workplaces appear to be much safer than others. “We see a wide variation in injury rates, even among companies doing the same business,” Shannon explains. “Some companies have injury rates that are at least ten times higher than other companies doing the same type of work.”

Shannon and Vidmar wanted to find out what would happen if the “poor performers” were able to bring their injury rates down to those of their “better performing” peers. (Better



performers were defined as those at the 25th percentile of injury rates for companies in the same business—that is 25 per cent of companies actually had lower injury rates.)

The study analyzed claims data from companies insured by the Workplace Safety & Insurance Board (WSIB) between 1998 and 2001. In Ontario, the WSIB categorizes companies doing similar work into “rate groups,” such as hospitals, hotels, or auto assembly plants. This is done for the purposes of scheduling insurance premiums.

The researchers calculated an injury rate for each company within each of the 215 rate groups examined in the study. After adjusting for firm size and injury type, the team estimated the potential reduction in injury that would be expected if poor performers did better.

“We estimate that 42 per cent of injuries could have been prevented if

(Continued on page 3)

Infocus This Issue's Supplement:

The burden of work-related musculoskeletal disorders: What we see today is just the “tip of the iceberg”

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**Research Excellence
Advancing Employee Health**

The Institute for Work & Health is an independent, not-for-profit organization whose 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.

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What Researchers Mean By...

“EFFECTIVENESS”

In this issue of At Work we launch a new regular column. We hope it helps readers—who may not be researchers themselves—better understand what researchers do and the language they use when reporting their findings.

If a drug or exercise reduces pain and disability, if a vaccine protects us from infection, if talking to a therapist relieves our depression, we judge the intervention to be “effective.” When it comes to health and illness, most people understand this basic concept of effectiveness.

Research in workplace health is often undertaken to determine the effectiveness of interventions to protect or improve the health of workers. For example, will ergonomics programs reduce or prevent repetitive strain injury among keyboard operators? Does safety training reduce injuries in young workers?

A health service or intervention is considered to be “effective” if well-designed studies show that it improved health outcomes in a typical community or workplace setting.

But there's a big difference between effectiveness (how well a particular health service or intervention can be expected to work in the real world) and efficacy—how well it works in the ideal, controlled environment of a formal research study.

Researchers who study efficacy often do so in the context of a randomized controlled trial or RCT. In this type of study, subjects are randomly assigned to an intervention group (those who receive the experimental treatment or service) or a control group (those who don't). During the course of a RCT, subjects are closely monitored and are expected to adhere to often complex treatment regimens. Their progress may be followed by researchers for weeks, months or even years after the trial ends.

Just because an intervention scores high on efficacy during a research trial, that's no guarantee it will be effective in the real world. One reason is that,

outside the ideal setting of a clinical trial or intervention study, people don't always comply with directions about prevention or treatment, and there is usually no follow-up to see how well they do over time.

Because questions about efficacy and effectiveness are often so complex, a new generation of research has started to evolve. It analyzes the effectiveness of interventions that have been found to work well in a controlled setting and also measures how successfully they transfer to the real world.

In many cases, however, research will establish that several interventions are effective in treating an illness or preventing injury. When this happens, decision-makers must weigh the effectiveness with other important considerations. For example:

- Even if the intervention is shown to be effective, how large was the effect? Did the intervention make a small difference in preventing or successfully treating a relatively rare event or complication? Or did it make a large difference in preventing or treating extremely common problem?
- Is the effective treatment or intervention available and affordable? If not, are there any reasonable alternatives?
- Did the research show any adverse effects that might have been caused by the intervention or treatment? If so, did these outweigh the benefits?

How important is effectiveness? Those who use research results—for example, patients and workers, health care providers, employers, organized labour and policy-makers—want to know whether a particular intervention for relieving low-back pain or reducing on-the-job accidents is effective. Knowing that an intervention is clearly not effective or is no more effective than other strategies can also be extremely useful. ▲

In the Spring 2005 issue of At Work, we will look at the key concept of “statistical significance.”



Researchers

MEET DR. PHILIP BIGELOW

Dr. Philip Bigelow was working as an Associate Professor in Colorado State University's occupational hygiene program when he felt it was time to shift his focus. He wanted to conduct research that had a greater impact on the health of workers.

"I knew about the Institute for Work & Health, having presented a paper at WorkCongress4 in Toronto that was sponsored by the IWH in 1999," he says. "I thought it would be an ideal setting for doing research in injury epidemiology and musculoskeletal conditions."

Before joining the Institute last year, Bigelow's research was interdisciplinary, combining his experience in risk assessment and epidemiology. His work involved determining the impacts on workers' health from exposures to injury risks and chemicals. He is also a long time member of the American Conference of Governmental Industrial Hygienists Threshold Limit Value Committee. The committee develops guidelines for maximum exposure levels for hazards in the workplace.



Dr. Philip Bigelow

Bigelow is currently involved in evaluating workplace-based programs for preventing musculoskeletal disorders (MSDs). He is working closely with Dr. Donald Cole, a senior scientist who specializes in work-related MSDs.

He was recently awarded a seed grant from the Centre for Research Expertise for the Prevention of Work-related Musculoskeletal Disorders and Disability (CRE-PREMUS). He will use this grant for preliminary research in how safety climate and organizational factors affect ergonomic interventions. The project is being done in cooperation with the Electrical & Utilities Safety Association of Ontario (E&USA).

Bigelow has also received several research grants from the U.S. National Institute for Occupational Safety and Health (NIOSH) which have supported

his research in exposure assessment, injury epidemiology and the evaluation of occupational health and safety programs.

"I get the most satisfaction in doing work that has direct impacts on workers and where the findings can be used to help others who face similar risks," says Bigelow, who has worked with under-served populations including migrant farmworkers. "It is encouraging to see that research can be effective in changing the status quo so that workers don't have to face unacceptable risks and can have a say in their own health and safety."

Bigelow holds a PhD in epidemiology from the University of Calgary and a Master's in occupational and environmental health from the University of Toronto. He has served as a faculty member at Colorado State University since 1992 and at Florida Agricultural & Mechanical University since 2001.

In addition to his current projects, Bigelow will be collaborating with scientists in the Department of Public Health Sciences at the University of Toronto. ▲

Injury rates would drop sharply if some workplaces did as well as others (continued from page 1)

all companies performed at the 25th percentile within their rate group," says Shannon. "That would have meant 203,000 lost-time claims over the four years rather than the 352,000 that were filed."

"Our findings suggest that technological breakthroughs are not necessarily required to improve the performance of individual companies," says Shannon, who is also Director of the Program in Occupational Health and Environmental Medicine at McMaster University in Hamilton, Ontario and a professor of

clinical epidemiology and biostatistics. "What it probably comes down to is that companies must increase their knowledge of safety techniques and most importantly find the motivation to improve."

The Ontario Ministry of Labour recently announced a targeted enforcement program focused on high-risk employers that includes the hiring of 200 more work site inspectors. (For more information on this initiative, please visit the Ministry of Labour web site at <http://www.gov.on.ca/lab.>)

While some workplaces still have high injury rates, in general, work injury rates have dropped significantly in most industrialized countries since 1990. Lost-time claims allowed by Ontario's WSIB fell by nearly half—from 184,444 in 1990 to 95,568 in 2002. Similar reductions have been noted in the United States and other jurisdictions. ▲

The study "How low can they go? Potential for reduction in work injury rates" was published in the journal Injury Prevention 2004; 10:292-295.



Researchers

WE MUST UNDERSTAND “THE REALITY OF THE WORKPLACE”

It's vital to bridge the gap between those who design and carry out workplace health studies and those who may one day use this research, says Dr. Jean-Yves Savoie.

Narrowing this gap will be one of his priorities as the new Chair of the Workplace Safety & Insurance Board's Research Advisory Council (WSIB RAC). The WSIB RAC provides grants to workplace health research projects and to two Centres of Research Expertise.

“I have always been a great believer in getting stakeholders involved in the research process,” says Savoie, who

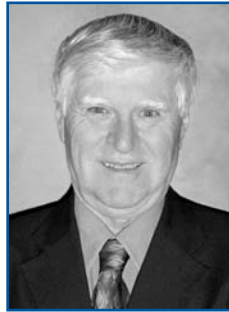
“When you understand the reality of the workplace, you can identify unmet needs, develop successful research projects and thus facilitate results uptake.”

replaces outgoing Chair Dr. Robert Norman. “When you understand the reality of the workplace, you can identify unmet needs, develop successful research projects and thus facilitate results uptake.”

Savoie, whose main areas of expertise include industrial hygiene and toxicology, has always been an enthusiastic promoter of research. He took an active role in creating the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST) in Montréal, Quebec, and later became its scientific director and director general.

He currently serves as Advisory Board Chair of the Institute of Population and Public Health of the Canadian Institutes of Health Research. He is also a member of the IWH's Scientific Advisory Committee.

Savoie believes researchers should do everything they can to better under-



Dr. Jean-Yves Savoie

stand workplaces and workers when they design and carry out workplace health studies. They should pay special attention to workplaces and workers and find out about their needs and concerns.

He adds that research organizations like the Institute will only excel if they continue to strengthen their partnerships with other organizations. This includes partnerships with as many stakeholders as possible—workers, organized labour, employers, insurers, service providers.

“We've already made a good start,” he says. “The WSIB, its Research Advisory Council and the researchers they support have nurtured relationships with numerous industry partners. They are considered model institutions for their collaborative efforts.”

It's also vital for research organizations to do whatever they can to build capacity—that is, to create a fertile environment for scientific inquiry. This can be accomplished in many ways—for example, providing training and funding to young scientists interested in workplace health, encouraging collaboration among research teams and institutions, and developing methods for disseminating research findings to various audiences.

“I believe that as researchers we should always ask ourselves: ‘What are the best processes or environments to facilitate the best research to facilitate the best results?’”

Savoie says this requires researchers to “keep up”—not just with developments in their field, but also with scientific and policy developments both within and beyond the area of workplace health and safety. ▲▲

Upcoming plenary at the Institute

An important component of the Institute's research program is the presentation of plenary sessions, which are open to external attendees. The 2005 plenary session is now in full swing. View the list of upcoming plenaries on our web site at <http://www.iwh.on.ca/about/plen.php>.

Tuesday, February 15, 2005

Challenges in Return-to-Work Research: Concepts, Theory, Measures and Outcomes

Presenter: Glenn Pransky

Center for Disability Research, Liberty Mutual Research Institute, Hopkinton, Mass.

This presentation will discuss recent research activities of the Center for Disability Research, and the efforts of researchers to define and elaborate a comprehensive model of return to work based on these investigations. Specific studies and results will be presented, emphasizing those efforts that complement ongoing work at the IWH.

Seating is limited. To confirm your attendance, please contact Lyudmila Mansurova at 416-927-2027 ext. 2137. Plenaries are held at the Institute for Work & Health, 481 University Avenue, Suite 800, Toronto. They are usually held from 10:45 a.m. to noon.

New IWH Publications

The following Institute Working Papers are now available.

Duration of work disability: A comparison of self-report and administrative data
J Pole, RL Franche, S Hogg-Johnson, N Krause, M Vidmar (#266)

The productivity consequences of two ergonomic interventions
K DeRango, B Amick III, M Robertson, T Rooney, A Moore, L Bazzani (#222)

A systematic review of the prevention incentives of insurance and regulatory mechanisms for occupational health and safety
E Tompa, S Trevithick, C McLeod (#213)

The association between adolescents and young-adult behavior problems in a male cohort
A Khambalia, C Breslin, C Mustard (#199)

For more information on these publications, or to place an order, visit our website at <http://www.iwh.on.ca/products/product.php> or contact Administrative Assistant Melissa Cohen by e-mail at mcohen@iwh.on.ca or by phone at 416-927-2027 ext. 2173.

Sharing ideas at “Solutions” conference

In 2003, the Workplace Safety & Insurance Board provided benefits to survivors of 119 Ontario workers who were killed on the job that year.

“That’s 119 too many men, women and young workers who didn’t come home from work,” said Jill Hutcheon, President and Interim Chair of the WSIB, who reported the statistic at the annual “Solutions for Workplace Change” conference held last November in Toronto.

The conference, organized by the WSIB’s Research Advisory Council (RAC), brought together workplace health researchers, representatives of organized labour, employers and health and safety associations. The goal was to meet and discuss how research findings might be applied to make Ontario workplaces safer and to reduce the incidence of workplace injury and disease.

Scientific posters highlighting Institute research projects were featured at the conference. Dr. Dorcas Beaton presented her research on the classification of musculoskeletal disorders; Dr. Curtis Breslin discussed the relationships between job tenure and lost-time claims for injury; and Dr. Emile Tompa presented his research on the effects of contingent employment on health. Other IWH presenters included Dr. Carlo Ammendolia, Dr. Donald Cole, Roman Dolinschi, Dr. Mickey Kerr, Dr. Dee Kramer, Anjali Mazumder, Irina Rivilis, Peter Smith, and Alysha Williams.

The conference also hosted a lively panel discussion about how best to encourage the use of research evidence. Unfortunately, “there remains a lag” between the generation of evidence and the adoption of evidence-based solutions, said IWH President Dr. Cameron Mustard who took part in the panel.

The outgoing Chair of the RAC, Dr. Robert Norman, emphasized the importance and value of research in the quest to reduce work-related injury, illness and disability. Dr. Jean-Yves Savoie was introduced as the new RAC Chair for 2005-2007 (*see page 4 for full story*).

The conference showcased the two new Centres of Research Expertise which are being funded by the RAC. The Centre for Research Expertise for the Prevention of Work-Related Musculoskeletal Disorders and Disability (CRE-PREMUS) in Waterloo is headed by University of Waterloo professor and IWH adjunct scientist Dr. Richard Wells. The Centre for Research Expertise for Occupational Disease (CRE-OD) in Toronto is led by Institute adjunct scientist Dr. Linn Holness.

To view select IWH posters from the conference, please visit: <http://www.iwh.on.ca/about/present.php>.

IWH scientists participate in WorkCongress6 in Rome, Italy

Closing the gap between developed and developing countries, responding to specific needs of vulnerable workers, and the shift from an industrial economy to the knowledge economy were key themes at the 6th International Congress on Work, held in Rome, Italy this past December.

“WorkCongress is the single most important international meeting of policy-makers and researchers that unites all the interests which align with the Institute’s research mandate,” said conference panel member and IWH President Dr. Cameron Mustard.

Delegates from 41 countries attended the four-day conference and participated in a variety of workshops, plenary sessions and panel discussions that focused on recent developments in occupational health and safety. Topics of interest included how to prevent workplace injury, best practices for

rehabilitating injured workers and the optimal design of compensation insurance for work disability.

Sandra Sinclair, IWH Director of Operations, chaired workshops on quality of working life and declining work injury trends across jurisdictions.

Scientist Emile Tompa presented a paper on post-accident earnings and benefits, while scientist Renée-Louise Franche presented a paper on work disability prevention training programs. PhD students Peter Smith and Agnieszka Kosny participated in sessions on young workers and national approaches to occupational health and safety. “It was very valuable to have the opportunity to see what research initiatives and policy developments are taking place in countries around the world,” said Tompa.

The Institute has been involved in this bi-annual event since 1995 and hosted the successful WorkCongress4 in Toronto in 1999. Institute staff serve on an ongoing basis on the International Steering Committee, which makes decisions about programming and site selection.

Mustard is a member of the planning committee for WorkCongress7, to be held in Hong Kong in June, 2006.

**We welcome your
feedback on
At Work and Infocus.**

Please send comments and
suggestions to atwork@iwh.on.ca.

We value your input!

Grant round-up

In addition to the Institute's core funding from the WSIB, Institute scientists receive grants and awards from other external funding agencies. These funds help to support research on work and health issues and the transfer of research messages. The following grants were awarded to IWH researchers between July 1, 2004 and November 10, 2004.

Operating Grants

PRINCIPAL INVESTIGATOR	TITLE	GRANTING AGENCY	AMOUNT/TIME
Philip Bigelow	Exploring organizational factors and safety climate in the implementation of an ergonomic intervention	CRE-PREMUS ¹	\$7,500 18-month research seed grant
Renée-Louise Franche	Determinants of return-to-work: Applying the readiness for change model	WSIB-RAC ²	\$278,320 Two years
Jaime Guzman	What are the key modifiable personal and environmental factors that prevent disability in people with back pain? A consensus using Delphi and Q-card methodologies	WSIB-RAC	\$29,054 One-year development grant
Cameron Mustard	Predictors of the incidence of disability income insurance among Ontario labour-force participants, 1994-2004	WSIB-RAC	\$161,000 Two years
Dwayne Van Eerd	Evaluating a partner-based participatory intervention for musculoskeletal disorders and minor injuries in the service sector	CRE-PREMUS	\$7,390 One-year research seed grant
Alysha Williams	Evaluating the effect of transformational leadership on musculoskeletal disorders and minor injuries in the service sector	CRE-PREMUS	\$7,390 One-year research seed grant

Career Awards (awarded to an individual)

Carlo Ammendolia	Canadian Institutes of Health Research (CIHR) Career Award	CIHR/Canadian Memorial Chiropractic College (CMCC)	One year
Andrea Furlan	Clinician-Scientist Fellowship Award	University of Toronto Centre for the Study of Pain	One year
Jill Hayden	Post-doctoral Fellowship Award	CIHR/Canadian Chiropractic Research Foundation	Two years

¹Centre for Research Expertise for the Prevention of Work-related Musculoskeletal Disorders and Disability

²Workplace Safety & Insurance Board - Research Advisory Council



Published by Institute for Work & Health
481 University Ave., Suite 800, Toronto, ON Canada M5G 2E9
E-mail: atwork@iwh.on.ca Web site: www.iwh.on.ca

Manager, Communications: Kathy Knowles Chapeskie

Editor: Reshma Mathur

Layout & Design: Carol Holland

Contributors: Kathy Knowles Chapeskie, Evelyne Michaels, Reshma Mathur, Elizabeth Resendes

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