

# outwork

## IN THIS ISSUE

- 2 / What researchers mean by... simple regression
- 3 / Experience rating design differences lead to different outcomes in Ontario and B.C.
- 4 / Advocate and pioneer challenges all to erase stigma faced by workers with disabilities
- 6 / Work disability research centre supports the development of new standard, and more
- 7 / Vulnerability survey helps employer assess worker OHS awareness, empowerment

Photo ©Infrastructure Health & Safety Association

## Ontario utility continues to benefit long after joining participatory ergonomics study

Reduced soft-tissue injuries at Kitchener-Wilmot Hydro attributed to work by participatory ergonomics team set up during study by IWH and others more than 10 years ago

In 2005, when Kitchener-Wilmot Hydro Inc. was invited to join five other utilities to take part in a research project on preventing musculoskeletal disorders (MSDs), George Minow didn't have to think too long about his answer.

"It was simple to say yes," says Minow, manager of health, safety and wellness at Kitchener-Wilmot Hydro, a utility that today employs about 180 people and serves 91,000 homes and businesses in southwestern Ontario.

"At that time, soft-tissue injuries were regularly the number-one or number-two cause of injury," says Minow. But in an industry where falls, burns and shocks are also common hazards, "soft-tissue concerns often took a back seat," he adds.

To managers, the research project offered an opportunity to establish a group devoted to tackling MSDs. The project set out to examine the implementation of participatory ergonomics programs

in small and medium-sized utilities where resources are scarce. Participatory ergonomics (PE) is an MSD prevention approach that involves active participation of employees in developing solutions and implementing change.

The research was conducted by a team from the Institute for Work & Health (IWH), the Centre of Research Expertise for the Prevention of Musculoskeletal Disorders (CRE-MSD), and the Electrical & Utilities Safety Association, which has become part of the Infrastructure Health & Safety Association (IHSA).

Today, nearly 10 years after the project concluded, it has continued to have a lasting effect: participatory ergonomics is still going strong at Kitchener-Wilmot Hydro. "We have sustained a 30-per-cent reduction in soft-tissue injuries, even with an increase of staff," says Minow. "And the severity of MSDs has decreased, as staff report symptoms earlier and so are helped faster."

continued on page 8



## 2015 Annual Report celebrates 25 years of Institute for Work & Health

Since its beginnings in 1990, the Toronto-based Institute for Work & Health (IWH) has become a world leader in providing evidence-based insights into the prevention of worker injury, illness and disability—in Ontario, Canada and beyond. To mark IWH's 25th anniversary, the 2015 Annual Report looks back at the Institute's research and the impact this work has had on improving policies and practices that protect workers from occupational injury, illness and disability. It tracks the progress of research in such areas as musculoskeletal disorder (MSD) prevention, effective workplace health and safety practices, protecting vulnerable workers, improving return-to-work practices, improving compensation and benefit programs, and contributing to the development of research practices. Download the annual report at: [www.iwh.on.ca/annual-report](http://www.iwh.on.ca/annual-report).

### New injury prevention tools for workplace use

Workplaces have two new tools to help assess areas needing further work injury prevention efforts. The Institute's Organizational Performance Metric (IWH-OPM) is an eight-item leading indicator tool that has been shown to predict work injury rates three years down the road. It can be downloaded at: [www.iwh.on.ca/iwh-opm](http://www.iwh.on.ca/iwh-opm). Also, the OHS Vulnerability Measure is a 27-item employee survey that measures the extent to which workers may be vulnerable to occupational health and safety (OHS) risks at work. It can be found at: [www.iwh.on.ca/ohs-vulnerability-measure](http://www.iwh.on.ca/ohs-vulnerability-measure).

### Plenary slidecasts now with Q&A

IWH plenaries are hour-long presentations on a work and health research topic, held at the Institute and open to the public. Those unable to attend in person may afterward listen to the slidecasts, posted at [www.iwh.on.ca/plenaries](http://www.iwh.on.ca/plenaries) and on IWH's YouTube channel: [www.youtube.com/iwhresearch](http://www.youtube.com/iwhresearch). Starting September 2016, many slidecasts also contain a link to the Q&A segment of the presentation. Look for that link by clicking on the "show more" button below the video.

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WHAT RESEARCHERS MEAN BY...

# simple regression\*

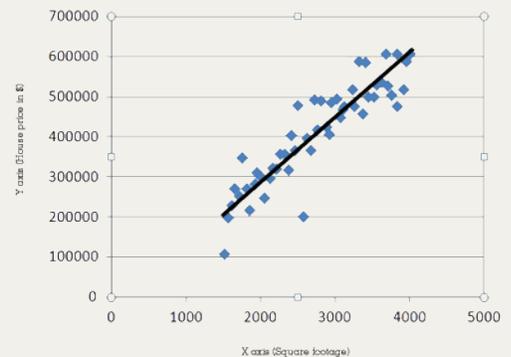
## Simple regression helps researchers understand the relationship between two items, which can then be used to make predictions

Suppose you are a researcher hired by a neighbourhood real estate agency, and your job is to help agents predict how much their clients' homes will sell for. One theory you keep hearing from the agents is that house prices are closely related to the size of the house. They believe they should be able to predict the price of the house based on its square footage.

To test this theory, you would have to set up a study and use a common research technique called **simple regression**. This is a statistical method or tool that helps researchers understand the relationship between two items.

For your study, you first have to collect your data. You gather information on the homes that have been sold over the past year. For each house, you need to know its square footage and selling price. You then plot this information on a chart and create what is called a scatter plot (see below).

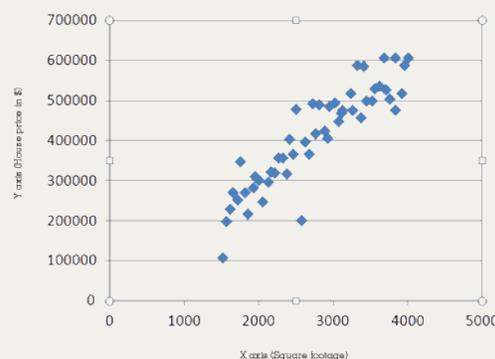
Now you conduct your simple regression. A simple regression, often calculated using a software program, creates an equation that best describes the relationship between the two things you looked at in your study or, in other words, best "fits" the dots on your scatter plot.



In this case, the simple regression shows you that the equation that best describes the relationship between house price and square

footage based on the information you provided is  $y=150x$ . That is, the selling price of a house increases by \$150 for every square foot increase in size. This equation is easily shown on a graph by a straight line, showing the "best fit" among all the dots on the scatter plot.

This line or equation now becomes useful for predicting the selling price of a house. Knowing how big a client's house is, the real estate agent can predict how much it will sell for.



The square footage is shown along the horizontal line, which is referred to as the "X axis." The item that goes along this axis is called the independent or predictor variable because it is fixed. House price is shown on the vertical line or "Y axis." This is called the dependent or response variable because it is changeable. That is, the dependent variable (price of house) changes depending on the independent variable (size of house).

However, based on the simple regression, you wouldn't advise the real estate agents to price homes based only on their square footage. You suspect that other things besides house size might account for the price of the house and, therefore, need to be taken into consideration. That's where multiple regression comes in. We'll get to that in our next column.

\* This is an update of a 2007 column

# Experience rating design differences lead to different outcomes in Ontario and B.C.

## Ontario sees larger reductions in injury claims, but B.C.'s reductions are more enduring

In many workers' compensation systems, the premium rate charged to an organization depends on the degree to which that organization's injury claims costs are higher or lower than the industry average.

This mechanism, called experience rating, is meant to provide workplaces with a financial incentive to invest in programs that prevent work-related injuries. This incentive may also sometimes lead to improvements in accommodations to facilitate sustainable return to work of employees who experience work injuries. However, some studies have shown that experience rating programs may also encourage some organizations to focus more on managing claims costs.

To examine the impact of financial incentives on claim activity, a new study by the Institute for Work & Health (IWH) examines two very different experience rating programs: those of Ontario and British Columbia.

In B.C.'s program, premiums are adjusted at the beginning of an insurance period based on an organization's historical claims costs. Adjustments are gradual based on performance over the long term, and as a result premium rates do not change dramatically from one year to the next.

In contrast, organizations in Ontario pay a premium rate based on the average for their respective industrial sectors. Premiums are then adjusted through rebates and surcharges at the end of the annual insurance period. Compared to those of the B.C. program, premium adjustments in Ontario are more immediate and can be large.

The study finds that Ontario's more immediate premium adjustments from the industry average are linked to greater and more immediate claims reductions than B.C.'s more gradual, phased-in premium adjustments process. However, the relative impact of premium adjustments on claim rates are more enduring in B.C.

"Both Ontario's and B.C.'s experience rating programs are effective incentives for reducing various types of claims outcomes," says Dr. Emile Tompa, a labour economist and senior scientist at IWH and the lead author of the study. "However, the effect is larger and more immediate in Ontario."

### Comparing two provinces

Tompa's study, published in the July 2016 issue of the *Journal of Occupational and Environmental Medicine* (doi: 10.1097/JOM.0000000000000754), is one of the first to compare two very distinct experience rating programs.

The study team tracked claims rates of 6,600 organizations in B.C. and 13,000 in Ontario over five years. The types of claims examined included no-lost-time claims, short-term disability claims and long-term disability claims, among others. The team looked for changes in claims rates across more than a dozen industries. They also took into account many factors that may have affected an organization's claims rates, such as whether the organization experienced growth or downsizing, or operated in a climate of high employment in the sector.

"Most studies about the use of experience rating in workers' compensation schemes treat it as a singular concept, as though differences in experience rating programs don't matter," says Tompa. "This study shows us that the design options in experience rating programs make a difference and should be taken into consideration."

Asked to weigh the merits of the two programs, Tompa says there are pros and cons to both. "If you are an organization in B.C. and you have one really good year—you have no claims and you do an amazing job on health and safety—it's not going to make a dramatic impact on the premiums you pay that year," says Tompa. "You have to sustain your performance over many years and gradually

build up your credibility before you see that reflected significantly in your premium rate." Likewise, organizations that otherwise have good track records would not be too severely penalized for one year of poor performance.

As a result, such a program might lessen the temptation to manage claims aggressively for a short period of time to simply rein in costs. However, it might also weaken the incentive for organizations to invest in costly changes needed to address health and safety issues if the organization does not see a quick payback, he adds.

"There are no easy answers," says Tompa. "If the time frame is too large and you don't see the rewards immediately and it takes years to recoup the costs, will the financial incentives be meaningful? How would that align with the decisions that organizations need to make about investing in health and safety?" Conversely, you may not want to encourage short-term, quick-fix responses that are not sustainable, he says.

This study comes out as Ontario's Workplace Safety and Insurance Board reviews its experience rating program. Goals of the WSIB's Rate Framework Modernization initiative include a new streamlined and simpler classification, and greater premium rate stability.

The study also adds insight to related research by Tompa on experience rating conducted in 2012. That research found that Ontario firms with a higher degree of experience rating (those facing potentially larger adjustments) are more likely to have outcomes that suggest claims cost management practices (i.e. fewer lost-time claims but more no-lost-time claims).

The study also found that a higher degree of experience rating was linked to more permanent impairment claims that result in no lost time from work, more denied claims and more claims that reopen after the window of organizational financial responsibility closes. That study was published in *Policy and Practice in Health and Safety*, in an issue exploring experience rating (doi: 10.1080/14774003.2012.11667772). ■

# Advocate and pioneer challenges all to erase stigma faced by workers with disabilities

## IWH's Nachemson lecture looks back on 20 years of achievements by NIDMAR and Wolfgang Zimmermann

In 1977, at the age of 20, Wolfgang Zimmermann was stationed on the west coast of Vancouver Island at a 450-person logging camp. It was his first week on the job with forestry giant MacMillan Bloedel. It was also his first job falling trees.

In those days, training for new employees was not part of company procedures. "It was simply: here's a power saw, good luck, go for it," Zimmermann recalled before an audience of disability professional and practice leaders from across Canada attending the Institute for Work & Health (IWH)'s annual Alf Nachemson Memorial Lecture.

Zimmermann was cutting down a 50-foot alder when it "barber-chaired." That is, it split down the middle and toppled over on Zimmermann. He was flown by helicopter to a Vancouver hospital with a broken back.

Little did he know that this event would set him down a path that would change the way much of Canada and, indeed, the world, views the (re)integration of injured workers and people with disabilities into the workplace. Zimmermann was celebrated for this work at IWH's 2016 Nachemson lecture, held in October in Toronto.

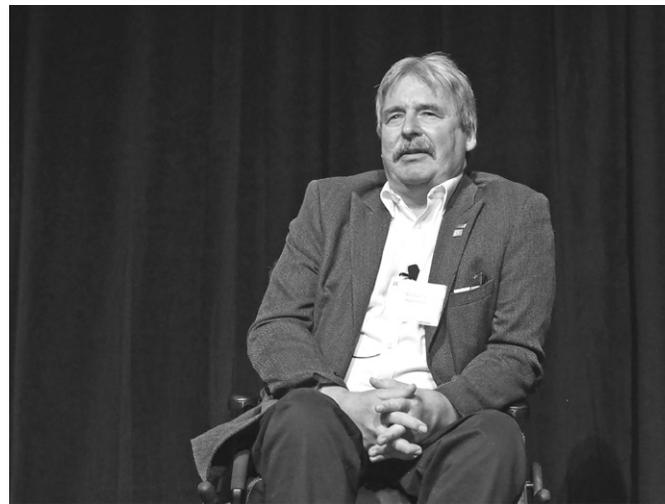
### Job loss a turning point

After his accident, Zimmermann was initially able to return to work. His union, the IWA, went to bat for him, and MacMillan Bloedel accepted responsibility for the accident. The training regime for new fallers changed dramatically, and Zimmermann was brought back to work in a different job soon after his recovery.

However, in 1982, MacMillan Bloedel decided to terminate all of its workers with disabilities. In those days, "disability" wasn't a protected ground of discrimination under B.C.'s human rights legislation. (That didn't happen until 1984.) "This is really what got me started on my path," said Zimmermann.

Having experienced the positive effects

of job attachment after a workplace injury and then experiencing the negative effects, Zimmermann set out to change the way workers disabled by a workplace accident are treated by their employers.



Wolfgang Zimmermann, founder and executive director of the National Institute of Disability Management and Research (NIDMAR), challenges all to "change the terrible narrative" of people with disabilities.

In 1994, he founded the National Institute of Disability Management and Research (NIDMAR), where he remains the executive director to this day. Under his leadership, NIDMAR, based in Port Alberni, B.C., went on to develop a code of practice for managing workplace disabilities, certification standards and educational programs for disability management professionals, a workplace disability management audit tool and, more recently, a university dedicated to workplace health sciences.

(It's worth noting that, by the time NIDMAR was created, MacMillan Bloedel had changed its ways—in part because of the advocacy of Zimmermann. The company reversed its policies on retaining injured workers and, indeed, became a founding

member of NIDMAR. MacMillan Bloedel was bought by Weyerhaeuser in 1999.)

### Strong and balanced networks

The key to Zimmermann's success, according to Andrew King, former national leader of health, safety and environment for the United Steelworkers in Canada, is that he was "able to build a strong network of sup-

porters from diverse backgrounds, often with conflicting interests." King was one of three speakers at the lecture who shared their experiences working with Zimmermann.

According to King, two themes ran through Zimmermann's approach that allowed him to successfully move his agenda forward. First, he brought together "a balanced table" of key representatives to participate in his projects and on his boards, which were always chaired by representatives of the two central

parties—management and labour—and always included workers with disabilities.

Second, he insisted that current practices be changed, using evidence, research and experience, to make real improvements in the lives of injured workers and workers with disabilities. "Wolfgang's work stands out for its unrelenting commitment to forge practice that will result in concrete improvements for workers in ways that are pragmatic and supportive of good practice in unions, business and government," King said.

### A catalyst for workplace change

Zimmermann's work has led to changes in many Canadian workplaces, including Canada's largest—the federal public service. The Honourable Wayne G. Wouters, PC,

another speaker at the IWH lecture, met Zimmermann 15 years ago when Wouters was the deputy minister of Human Resources Development Canada. His brother, working in the B.C. government at the time, told him he should meet someone “who had new and interesting ideas about dealing with Canadians with disabilities in the workplace.” That person was Zimmermann.

Wouters was intrigued not only because of his role at HRDC, but also because he was personally concerned about the welfare of an injured colleague who was “like part of my family”—his former driver Giovanni Lappa. Lappa had been cleaning his roof at home when his ladder slipped and, as a result of the ensuing fall, would never walk again.

“I thought, okay, I’ll see what we can do to help get him back into the workforce,” said Wouters. To his surprise, he learned there was no formal way for him to help integrate an injured employee. “I had no idea what to do,” he said. “I knew I had to talk to Wolfgang.”

Wouters would eventually become secretary of the Treasury Board and then Clerk of the Privy Council (i.e. head of the federal public service), from which he has since retired. In all of these positions, the health of the Canadian government’s employees was a priority.

“It was through my conversations with Wolfgang that I realized how little we were doing to ensure federal departments had the necessary tools to reintegrate people with disabilities into the workplace,” said Wouters. “He was my catalyst.”

Today, many federal public service departments have return-to-work policies and practices. “At least things are moving in the right direction,” said Wouters, now chancellor of the Pacific Coast University for Workplace Health Sciences (PCU-WHS), the university founded by NIDMAR. “Canada’s public service owes a great deal of gratitude to Wolfgang.”

### A simple and brilliant idea

NIDMAR’s influence has travelled beyond Canada. Germany, for example, was one of the earliest adopters and remains one of the strongest supporters of NIDMAR’s work.

Nachemson speaker Joachim Breuer, director general of German Social Accident Insurance (DGUV), certainly didn’t see that coming when he first met Zimmermann in 2000. He was skeptical that someone from Canada, with its relatively short history of social security, would have anything to offer a German agency that had been doing return to work for a hundred years.

Nonetheless, Breuer and his team soon realized Zimmermann was on to something. “The most genius ideas are the simplest ones,” he said. “It’s not that Wolfgang invented return to work as a new philosophy. It was an old philosophy. No, his brilliant idea was to take the best of different return-to-work systems and make a standard out of it.”

That standard was the International Labour Organization (ILO) code of practice for managing disabilities in the workplace. It drew on the workplace-based, joint labour-management model developed by NIDMAR. The code came with training modules, certification standards and audit tools, developed by NIDMAR to support the code’s implementation.

Despite some initial resistance, the NIDMAR approach took hold at

DGUV. Today, Breuer told the Nachemson audience, Germany has more than 1,200 certified disability managers. “We can show injured workers and companies that we have specialists who have been educated to meet not only German standards, but also international ones.”

The impact of the code and NIDMAR continues to grow, Breuer pointed out. “The biggest country in the world, China, looked around the world for the best disability management system,” he said. “It decided two-and-a-half years ago to adopt this one. So we’re not at the end of the story. We are just at the beginning.”

### Challenge to do more

Despite advocating for injured workers and workers with disabilities since his own accident 40 years ago, Zimmermann would agree that Canada, at least, is just at the beginning. Indeed, he called on all those in the audience at the Nachemson lecture to “change the terrible narrative” that continues to describe the reality of most people with disabilities today.

What is that reality? Zimmermann pointed to some statistics. Fewer than half of all Canadians with disabilities are employed, compared to 80 per cent of the general population. And more than one million people with disabilities in Canada live on social assistance, with an average monthly income of less than a \$1,000 a month.

Zimmermann talked about how, through NIDMAR and the collective effort of champions, colleagues and friends, he has been lucky to be able to help advance the agenda for people with disabilities through the creation of standards, tools and the university. “But we have a helluva lot further to go,” he said.

Zimmermann challenged those in the audience to make a difference: to change workplace cultures that stigmatize workers with disabilities, to broaden and expand government programs and legislation that have proven successful, to convert research findings into concrete actions, and to conduct further research that goes beyond raising issues to finding answers.

“I’m fortunate because I did not get pushed to the margins of society the way so many people with disabilities are,” Zimmermann said. Now he’s calling on those in positions of influence to find solutions and make concrete changes that will achieve better outcomes for those not so fortunate. ■



At the 2016 Nachemson lecture, three speakers share stories of Wolfgang Zimmermann’s impact on disability management at their respective organizations. They are (from left to right): the Honourable Wayne G. Wouters, PC, Joachim Breuer, and Andrew King

# Work disability research centre supports the development of new standard, and more

## Centre for Research on Work Disability Policy funds a range of projects and studies across Canada

According to 2012 figures, about one in 10 Canadians of working age live with some form of disability—whether physical or mental, chronic or acute, episodic or temporary, work-related or otherwise.

Many of these individuals face barriers getting into or staying in the labour market due to their health condition or impairment. According to Statistics Canada, less than half of Canadians with disabilities are employed—much lower than the employment rate of those without a disability (74 per cent).

“Effective and cost-effective strategies are out there to reduce work disability, including policies to accommodate people with disabilities in the workplace and returning them to work,” says Institute for Work & Health (IWH) Senior Scientist Dr. Emile Tompa, co-director of the Centre for Research on Work Disability Policy (CRWDP). “But many employers struggle to learn about them and integrate them into their operations.”

That’s why the CRWDP, a pan-Canadian, multidisciplinary research centre established in 2014 and headquartered at IWH, is working with the Canadian Standards Association (CSA) to develop a new system standard for systematically managing work disability prevention.

It aims to take current research evidence, successful practices in the field, and the viewpoints of stakeholders—employers, workers and worker representatives, clinicians, workers’ compensation agencies, insurance companies, policy-makers and researchers—to inform a management system for use at the organizational level. It will include a framework for hiring and retaining people with disabilities. An implementation guide will also be developed to support the introduction of the standard in organizations of different sectors and sizes.

Called the National Standard for Work Disability Prevention Management Systems, this standard will be designed to integrate with

other CSA management systems and ISO standards. It will also dovetail with existing codes of professional practice, such as the one developed for disability managers by the National Institute of Disability Management and Research (NIDMAR), says Tompa.

“Management systems are based on current knowledge and best practices and are designed on the plan-do-check-act principle to ensure smooth functioning and continuous improvement,” says Tompa. “All domains of management need to be part of the management system. That’s why a standard is needed in this area—to ensure a clear, consistent and integrated approach to work disability prevention in workplaces across Canada.”

The development of this CSA standard is just one of the many projects underway within CRWDP. Below is a sample of other projects funded or led by the CRWDP:

### A database of the research literature

A starting point for any researcher on work disability policies is a review of the scientific literature. A systematic literature search led by Dr. Ellen MacEachen, CRWDP co-director, associate professor at University of Waterloo and adjunct scientist at IWH, has found 724 articles in peer-reviewed publications on work disability programs and policies. The results of this scoping review are now organized in a database accessible via the CRWDP website.

The articles in the database, published in or after 2000, all address government policy or legislation on work reintegration or income support after an injury or illness. Papers about internal workplace policies or private insurance programs are not included. “A goal of this project is to create a searchable international database relevant to both researchers and partners of CRWDP,” says MacEachen. “Many of our partners do not have access to research libraries. Research

around the world has produced some real learning on this topic, and we hope that this database will help make that research accessible to important stakeholders.”

MacEachen adds that syntheses of this literature are in the works, including one that compares countries with comprehensive work disability systems to countries with separate workers’ compensation systems. Another synthesis looks at how return-to-work practices are assessed and measured in the current literature—which is “not very well,” she adds.

### An evidence synthesis of workplace accommodation

To identify good practices in accommodating workers with disabilities, a research team led by Tompa conducted an evidence synthesis of accommodation policies, programs and practices—from assistive devices and flexible schedules to job restructuring and inclusive hiring practices. The report contains a table listing a broad range of accommodation options, along with examples of the relevant disabilities, industries and job categories. Where available, the table also lists best practices for implementation and evidence of effectiveness.

“A theme coming up often is that one type of accommodation does not meet the needs of all people, even if they have the same disability and are in the same job,” says Tompa. “The accommodation process must be person-centred. In fact, many of the studies suggest that the most effective way to identify and meet accommodation needs is to have the person with the disability play an active role in the identification of appropriate accommodations.”

An article synthesizing the peer-reviewed literature from this study, led by Kathy Padkapayeva, a research associate at IWH, is forthcoming in the journal *Disability and Rehabilitation*.

For more about the CSA initiative, the research database, the evidence synthesis, and other projects supported by CRWDP, please go to: [crwpd.ca/en/new-studies](http://crwpd.ca/en/new-studies). ■

# Vulnerability survey helps employer assess worker OHS awareness, empowerment

## Health and safety leader Carillion Canada uses IWH's new measure to identify weaknesses in organization

Even employers committed to health and safety may have areas of weakness within their organizations. A construction and facilities management company learned this recently, with the help of an occupational health and safety (OHS) vulnerability measure developed by the Institute for Work & Health (IWH).

By many indications, Carillion Canada has a strong record on health and safety. This



Lee-Anne Lyon-Bartley, Carillion Canada

Canadian subsidiary, which employs 6,000 people, has won a Canada Safest Employers award from *Canadian Occupational Safety* magazine for two years in a row.

Lee-Anne Lyon-Bartley, Carillion Canada's health, safety, quality and sustainability manager for the services business. "We have very visible leadership, and a lot of programs and initiatives on health and safety. It makes my job easier having such a strong safety culture and mindful leadership in place."

Lee-Anne Lyon-Bartley learned of IWH's OHS Vulnerability Measure thanks to her involvement on the Commercial Industrial Services (CIS) Advisory Committee of Workplace Safety & Prevention Services (WSPS), one of Ontario's four sector-based health and safety associations. At the time, a research team at IWH was recruiting companies for a study testing the application and feasibility of the tool in workplaces, and it had reached out to WSPS for help.

Carillion signed up out of a wish to support workplace health research. "We're interested in being engaged and involved in

research—in providing real-life, on-site opportunities for research," says Lyon-Bartley. Why? "We knew we might benefit from the information we get," says Lyon-Bartley.

"And we hope that others might also benefit from the results that come out of a study. If Carillion can help make workplaces in Canada safer, then it's a win-win for all of us."

### Dimensions of vulnerability

The OHS Vulnerability Measure is a 27-item employee survey developed to assess the likelihood that workers are at risk of injury. The measure is based on the idea that it's not just workplace hazards that make workers vulnerable. They're vulnerable when they are exposed to hazards and not aware of health and safety issues, or not empowered to speak up or refuse work, or not adequately protected by the organization's OHS practices and policies.

So what did Lyon-Bartley expect to find?

"I expected to find some vulnerability. I think anyone would," says Lyon-Bartley. "But I wasn't sure what it would look like or where it would be. We wanted to find out these things to help us learn where to further our efforts in terms of prevention and continuous improvement."

The results confirmed a few positives that Lyon-Bartley had always known about Carillion. A majority of the respondents said their supervisors were aware of workplace hazards, for example. "Also, employees knew they could report hazards using our 'Don't Walk By' program, as well as report near misses and accidents, no matter how minor they may seem. So it's good to know that they know that and are clear on that."

The company was also pleased that its investment around regular, ongoing training was evident, as respondents said they had received training in the past 12 months.

Still, there were a few surprises. "Many respondents did not know about Ontario's

mandatory health and safety awareness training, even though they all went through it," says Lyon-Bartley. "So that has us saying, 'Okay, did we miss something? Did we not communicate it properly?'"

Some of the hazards reported by workers weren't a surprise, especially those related to musculoskeletal problems in the hand and wrist or to awkward postures. Somewhat more sobering for Lyon-Bartley were employee responses with respect to empowerment. "Around empowerment is where there's room for improvement," says Lyon-Bartley. "People felt they did not have enough authority over their own work."

It's too early for Carillion to act on these results. Only three facilities took part in the study—not a representative sample. But Lyon-Bartley says she expects to offer the survey again in a larger cross-section of the company, likely two years after the first one.

However, the company is in the process of reviewing and changing its management system, and some of the findings from the OHS Vulnerability Measure will be taken into account. "These ideas are in the back of our mind as we're updating policies and procedures," Lyon-Bartley says. "For example, in terms of training and communication, we're already thinking differently about how we communicate and whether our messages get to all employees effectively."

Beyond the ability to benchmark Carillion against other Ontario employers (a benefit enjoyed by participants of this research project), Lyon-Bartley likes how the survey frames vulnerability.

"Overall, the idea of looking at vulnerability beyond the individual is what I appreciated," she says. "When you hear 'vulnerable workers,' you associate it with certain groups of people. This takes that perspective away and allows you to look at vulnerability more objectively, putting the issue back on the workplace and not the worker."

The OHS Vulnerability Measure is free to download at: [www.iwh.on.ca/ohs-vulnerability-measure](http://www.iwh.on.ca/ohs-vulnerability-measure). ■

## AT WORK

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# Ergonomics team helps spread MSD awareness across organization

continued from page 1

At the outset of the project, the participating utilities each created an ergonomics change team made up of staff from different departments. All members of the team, called the Ergonomics Wellness Team (EWT) at Kitchener-Wilmot Hydro, received training.

“They learned about soft-tissue injuries, how to fit work to the worker, how to get the most bang for the buck from an ergonomics program by making good purchases on new equipment, and how to choose cost-effective changes,” says Minow. A questionnaire completed by employees at the start of the project helped the EWT and management understand that soft-tissue concerns existed across the utility. “The results said to us, ‘You’ve got lots of work to do,’” says Minow with a small chuckle.

The ergonomics team helped bring in significant changes in how work is done at Kitchener-Wilmot Hydro:

- Job procedures were changed to reduce injury risk. For example, power line technicians used to lift reels of ropes to install overhead lines. These reels are 75 kilograms each when completely dry, and heavier when rain-soaked, putting power line technicians at risk of back injury, even with two workers lifting the reels. Today, this task is done by machine lifts.
- Ergonomics principles were applied to the purchase of new tools. Trial units of ergonomically designed presses, cutters, cable benders and impact wrenches are now purchased through the safety budget and rotated through to the crews and service trucks to be tested on the job. If workers save time and labour with a tool, then supervisors can request the new tool through the tool budget. This ensures the utility limits its losses if a tool is shown to be ineffective in the field.
- Ergonomics principles are also applied in the specification and customization of new trucks. Trucks are now equipped with air-ride seats to reduce vibration. They have reel stands and cable pulls to

prevent the recurrence of strain injuries. On one underground service truck, a 17-kilogram propane tank that once had to be lifted in and out of a trench many times a day now stays on the vehicle. A retractable hose is used instead to take the torch to the trench, reducing the manual handling required.

- A stretching program was introduced. First thing every morning, workers take a few minutes to warm up their large muscle groups. Field workers meet for a voluntary stretch session at 7:00 a.m. in the utility’s auditorium. Office employees stretch at 8:30 a.m. in a conference room. Today, it’s not just Ergonomic Wellness Team members who look out for and take steps to reduce MSD hazards. “Having the team has helped highlight the importance of ergonomics issues throughout the workforce,” says Minow. “Ergonomics is now considered in all that we do, by team members and non-team members alike.”

Although the team has had a near complete turnover in membership since it was created, there has never been a question of disbanding it. “When an opening comes up, there’s always a lot of interest. Quite a few people volunteer to be on it,” says Minow.

“What keeps it going is commitment,” he adds. The team meets regularly every two months, and once a year, the team gets together with ergonomic change teams at other hydro companies to share ideas. “Having things to work on also keeps the team going. You’re never really done.”

Minow credits the research project many years ago for introducing participatory ergonomics to Kitchener-Wilmot Hydro.

“I am very happy that we joined the program,” he says, adding it has led to the creation of a team that works well and attracts those who are interested in helping others take steps to reduce hazards. “Our company has won safety and wellness awards over the years, and this team is a jewel in the organization. It’s one of the most proactive things we do.” ■