at work

Photo supplied by Krystal Johnston

New research centre to examine work disability policy in Canada

The Centre for Research on Work Disability Policy, led by two IWH scientists, aims to improve how people with disabilities are supported in the labour market

Krystal Johnston always knew her work was potentially dangerous. But the one-time ironworker from Vancouver, B.C., didn't know one of the risks she faced was ending up poor and not knowing how to keep a roof over her head.

Johnston, only 29, has been told by doctors to give up on ironworking, a job she loves. Due to carpal tunnel syndrome, she's lost feeling in her hands and arms. She can barely keep tools in her grip, let alone climb columns of steel many storeys above ground, as ironwork requires her to do.

The pain, tingling and loss of sensation in her hands and arms came just five months after she started work at a Vancouver construction site. "I got hurt pretty quickly—and I believe it was from the vibrating tools," says Johnston. But she was unable to prove her condition was work-related, so Johnston didn't qualify for workers' compensation benefits.

The symptoms were so bad that she agreed to surgery. She toughed it out and worked in short spurts while waiting to be scheduled for the operations, one on each hand. Her condition didn't improve after the two surgeries. By then, Johnston had exhausted her Employment Insurance Sickness Benefits (EI-SB), which ran out after 15 weeks.

To be eligible for EI-SB again, Johnston will have to work 600 EI-insurable hours. Canada Pension Plan Disability (CPP-D) benefits are not an option. They're only available to those with severe and prolonged disability, to such extent that they're incapable of working at all. Johnston is now getting by on benefits from her union's disability insurance plan. But that's a small fraction of what she used to make—and it's running out.

She doesn't know what she'll live on as she finds her way into another career. "I'm doing it all on my own. I don't know where to find

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IWH updates

IWH president on provincial mining safety review

As part of a comprehensive review announced in December 2013 to improve the health and well-being of workers in Ontario's mining sector, the province's Chief Prevention Officer George Gritziotis has asked Institute for Work & Health (IWH) President **Dr. Cameron Mustard** to join an advisory panel of health and safety experts. The panel will evaluate a range of topics, including the use of technology, health and safety regulations, and training of employers, supervisors and staff on injury prevention. The review will also examine the sector's internal responsibility system.

Journal awards best paper prize to IWH scientist

A team led by IWH Senior Scientist **Dr. Emile Tompa** has won the 2013 Applied Ergonomics Best Paper Award. The prize goes out to the best paper in the journal, *Applied Ergonomics*, that demonstrates the comprehensive application of ergonomics in a clear and interesting fashion. Co-authored by Roman Dolinschi and Julianne Natale, the paper focused on the economic evaluation of a participatory ergonomics program at an Ontario textile plant. The award will be presented at the Ergonomics and Human Factors Conference in Southampton, U.K., in April 2014.

IWH scientists promoted

Congratulations go out to **Drs. Dorcas Beaton**, **Ellen MacEachen** and **Emile Tompa** for their promotions from scientists to senior scientists at the Institute, and to **Dr. Andrea Furlan**, who has been promoted from associate scientist to scientist.

Syme Fellowship to resume in 2015

The S. Leonard Syme Training Fellowships in Work and Health is on hiatus. The fellowship supports young researchers at the master's or doctoral level intending to study work and health. IWH will resume accepting applications in 2015.

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Subgroup Analysis

Subgroup analysis is a tool for exploring differences in how people respond to a health intervention, but it must be used with care

Think of a time you looked at a study and wondered if the thing being studied—a treatment, program or other intervention—was more effective for some people than others. **Subgroup analysis** is one way of finding out. It's a type of analysis done by breaking down study samples into subsets of participants based on a shared characteristic. The goal is to explore differences in how people respond to an intervention.

For example, let's say you want to study the effectiveness of a new drug for pain relief. You might set up a randomized controlled trial where one group gets the drug (the intervention group) and the other gets a placebo (the control group). Your goal is to find out whether those who receive the new drug report less pain compared to the control group.

However, you might also want to know if the new drug works better for certain groups of people than others. So you divide the study participants into subgroups according to factors that may be important: the type of condition causing the pain, how long the condition has been present, gender, age, etc. You may learn that the treatment works better for certain conditions and for women below a certain age—all potentially crucial information.

This might sound easy enough. But the research world struggles with subgroup analysis. That's because, when done improperly, it can lead to exaggerated or wrong findings.

How subgroup analysis can go wrong

There are two main reasons subgroups can lead to error. The sample size can be too small, and there can be too many comparisons done. When you break down your study sample into many subgroups, you may end up with too few participants in each to detect differences, or to ensure differences aren't just a matter of chance.

Take our pain relief study. Let's say there's a small but important difference in how people with neck pain respond to the treatment versus those with back pain. With enough people in the subgroups, you could find that difference, even if it's small. But if your subgroups have too few people in them, you won't have the "statistical power," as it's called, to detect the difference. As a result, you miss a difference that exists. Scientists call this a false-negative error.

Subgroup analysis can also lead you to make a false-positive error—when you see differences that aren't really there. If you slice and dice your study sample enough times, you'll eventually end up with a subgroup that responds to the pain treatment differently than the rest—such as redheads or people born in January. That would be what scientists call a spurious finding—one that doesn't make sense biologically or isn't based on sound theory.

There's also the kind of error that happens when you inappropriately define your subgroups. Take a factor such as age, for example. In your study, you might look at how the drug affects people of different ages—say, people in their 20s, 30s and 40s. But really, what's your rationale for subgroups of 10 years and not five years or 20? What if, by pure chance, the 37- and 38-year-olds respond really well to the treatment? Would you be able to resist the temptation to divvy up your sample into two-year subgroups and report on those findings? What if that meant the difference between getting your research published and not?

When subgroup analysis goes right

Despite these problems, there are certain things you can look for to tell whether a subgroup analysis has been done right:

- the subgroup analysis is a stated study objective from the start—not an afterthought;

- the researcher can explain the reason for doing the subgroup analysis (based on previous research or a sound hypothesis, for example);

- ideally, the researcher defines the subgroups upfront and states how many subgroup analyses will be done. As well, the researcher reports on all of them, not just the ones that give rise to interesting findings; and

- the study is designed so that the subgroups have large enough sample size.

Subgroup analysis is important for investigating differences in how people respond to a treatment or intervention. But when misused, it can result in misleading findings. That's why it's important to understand the risks associated with this kind of analysis and to know what to look for when you come across it.

Nachemson lecture: Research partnering with policy for data access the way forward

Partnership between UBC and WorkSafeBC serves as model for granting researchers access to big data

Long before most people heard the term, researchers have recognized the value of tapping into "big data" to build evidence to guide policy questions.

In British Columbia, one group of health researchers has spent the last 15 years forming a partnership with the province's workers' compensation system, Work-SafeBC, to access administrative data for research on work injury, occupational disease prevention and compensation policies. Administrative data refers to data that's collected for purposes other than research, such as compensation claim records.

Called the Partnership for Work, Health and Safety, the initiative has proven fertile ground for important research findings and provides a model for collaboration between researchers and policy partners. This is according to Dr. Mieke Koehoorn, a professor at the University of British Columbia (UBC)'s School of Population and Public Health.

Koehoorn shared this and some lessons learned as co-lead of the partnership at the 2013 Alf Nachemson Memorial Lecture, the annual lecture of the Institute for Work & Health (IWH). The lecture took place in Toronto in November 2013.

One of the lessons Koehoorn learned was this: ensuring a successful partnership takes nurturing. "It has often been like maintaining a common-law relationship," she said. "For research evidence to inform and impact policy, the researcher-decision-maker relationship needs to be long term and committed."

Another important lesson she learned was to adopt a new perspective on how research impacts policy. Quoting Dr. Carol Weiss of the Harvard Graduate School of Education, Koehoorn said research findings may not immediately influence regulatory standards. She said the partnership helped her realize that the impact of research on policy is

more broad and encompassing. It includes influencing how policy-makers think about an issue, justify a policy or decision, set or act on priorities, and monitor and modify policies.

Dr. Mieke Koehoorn

Learning from data linkages

The Partnership for Work, Health and Safety had its beginnings in the late 1990s, when WorkSafeBC and UBC teamed up to help answer questions raised by the Royal Commission on Workers' Compensation in British Columbia. The collaboration allowed for pioneering work in linking workers' compensation claims data with other health-related databases. "This work demonstrated proof of concept," said Koehoorn. "It demonstrated the utility and ability of these data to inform policy issues and to answer policy-relevant research questions."

After the initial work for the Royal Commission, the partnership continued to link compensation claims data with health data. The linkage resulted in evidence of the percentage of people in B.C. with work-related respiratory diseases and diseases associated with working with asbestos.

In both cases, said Koehoorn, using B.C. data provided compelling evidence to WorkSafeBC that these were priority

areas. The research supported the agency's decisions to expand compensation for work-aggravated asthma and to improve recognition of asbestos-related disease in the province.

From there, the research agenda expanded to include the use of administrative data to evaluate compensation policies and programs. The work at this phase included a study evaluating surgical policies for work-related injuries and a project evaluating mandatory certification of tree fallers and its impact on injury rates.

Through this research, Koehoorn learned that decision-makers were receptive to research that provided justification of existing policies or that can be used to refine the implementation of policies.

Building trust between policy and research

Today, the relationship has matured to the point where the policy partners trust their research partners to explore more complex and sensitive policy questions—such as how to evaluate inspections and other health and safety practices, or how to address gender differences in work injury and disability rates.

Research impact at this stage, said Koehoorn, is the result of a trusted and ongoing interaction, where the policy-maker relies on knowledge generated by the researcher, and the researcher in turn gains access to data.

"Big data matters—for having an impact, for providing population-based evidence in a local context that resonates with the policy-maker," said Koehoorn. "Supporting public access models to use this data for research purposes is, in my opinion, the way forward."

To hear the full Nachemson lecture while viewing the slides, go to: www.iwh.on.ca/nachemson-lecture. ◼

Programs for people with disabilities often create work disincentives, say researchers

support," she says. "I just never thought if I ever got hurt I would be kicked out on the porch in the rain."

Across Canada, there are thousands of stories like Johnston's. These are people facing barriers in the job market due to a health condition or impairment—hence, a "work disability." They want to work to their capacity, but the current system of support in Canada isn't well designed to tap into that willingness.

The issue affects Canadians more broadly than what's captured in the numbers. According to Statistics Canada, 2.3 million Canadians 15 to 64 years reported in 2012 that they are limited in their daily activity due to a disability. That's 10.1 per cent of the working-age population. Taking into account all forms of disability—whether acute or chronic, temporary or episodic, physical or mental, coming early in life or late, work-related or otherwise—it's easy to see how the issue touches most people at some point in their lives.

Research centre to work with partners across Canada

"We need a work disability system that meets the needs of all working-age individuals when disabled, regardless of how they became disabled or for how long," says Dr. Ellen MacEachen, a senior scientist at the Institute for Work & Health (IWH).

"The rules and procedures of the current array of programs are complicated and, in some cases, were designed for a different era," adds labour and health economist Dr. Emile Tompa, also a senior scientist at IWH. "Also, the rules and procedures aren't fully aligned, so it can be difficult for individuals to navigate the system to get the support they need to get back to work."

It's toward that vision of a more coherent work disability system for Canada that Tompa and MacEachen are founding a new research centre. The Centre for Research on Work Disability Policy (CRWDP) was officially launched at McMaster University in Hamilton, Ont., on February 4 (see box

on next page). The centre is funded by the Social Sciences and Humanities Research Council of Canada (SSHRC), its funding is administered by McMaster University, and its headquarters are physically hosted at IWH.

CRWDP will support research taking place in 15 research/academic institutions across Canada, grouped into four regional clusters: British Columbia, Ontario, Quebec, and Newfoundland and Labrador. It is also working with almost 50 partners from across Canada, including disability and injured worker community organizations, provincial and federal-level disability support program providers, labour organizations and employers.

Current support system fragmented, outdated

One of the centre's objectives is to develop national consensus on specific policies that will allow the system to provide better income support and labour-market engagement for people when they're ill or disabled, says Tompa.

The current system hasn't kept pace with deep structural changes in society, says MacEachen. An aging population means chronic and episodic disabilities are on the increase, and people with these types of illnesses often struggle to find accommodation or access support. As well, the long-term, full-time jobs that predominantly characterized the labour market are increasingly being replaced by part-time, temporary and/or casual work. As a result, parts of the working-age population are not supported very well by the current system if they fall ill or get injured, and some fall through the cracks.

Today's system was built over several decades, with different parts designed to meet different pockets of needs. What Canadians have now is a fragmented system of uncoordinated parts, adds Tompa. No less than seven different programs make up Canada's work disability system (see www.iwh.on.ca/at-work/75/

canadas-disability-system-at-a-glance). They have very different terms of eligibility, different levels of income support and different rules on supplemental income sources—and there's no one-stop service desk to help individuals navigate these complexities.

The system's support for work integration is also spotty. Of the different programs, only workers' compensation programs place a clear and consistent emphasis on helping people back to work. That includes an expectation on employers to accommodate workers with injuries or illnesses. Workers' compensation programs also have their flaws. For example, they can deem claimants employable, pushing them to go back to work before they're ready, says MacEachen. As a result, some get reinjured or, if they don't go back to work, are no longer eligible for benefits and are compelled to apply for welfare.

Outside the workers' compensation system, the role of employers is pretty much absent. With some programs, beneficiaries face penalties for trying to get into the job market, even at reduced capacity. When people are trying to get back on their feet with a part-time job, having benefits withdrawn can be a big disincentive. These people face upfront costs for such necessities as transportation and work clothing. They are also taking a real risk of finding themselves out of work once again if a chronic disease flares up or their work performance is found wanting.

Employers have a role to play

One of the ways the system is outdated is this "either-or" view of disability, says Steve Mantis, an injured worker advocate and a member on the CRWDP executive. "It's seldom so cut-and-dried that you're either able to work or you're not. We need a system that thinks about accommodations. We need to think of how we can change work hours, work duties and/or work processes to accommodate people who want to work to their abilities."

In addition, employers need to better understand persons with disabilities' potential to contribute, says Marie Ryan, chair of the Council of Canadians with Disabilities' social policy committee and also a member on the CRWDP executive.

"I'd like to see a better understanding that people with disabilities are skilled, that hiring people with disabilities is not just about quotas, equity numbers or being able to say you have diversity in the workplace, that true inclusion means having people with disabilities at the managerial or partner level of a firm, not just on the front lines," says Ryan.

Although it's too early to say what policy prescriptions may come out of the work of the centre, Tompa says CRWDP has received strong support across the different stakeholder groups.

You can learn more about CRWDP and its official launch on its website at www.crwdp. ca, through its Twitter feed at @crwdp, in its newsletter *Working Policy* (sign up on the website), or by contacting the centre's manager Mai Elramly at melramly@iwh.on.ca. ✚

LT. GOV. DAVID ONLEY'S KEYNOTE SPEECH AT CENTRE LAUNCH TAKES ON MYTHS ABOUT PEOPLE WITH DISABILITIES

An attitudinal barrier still prevents people with disabilities (PWDs) from being gainfully employed and thus achieving their full potential to contribute to society. This was the message of Ontario's Lieutenant Governor, the Honourable David Onley, the keynote speaker at the official launch of the Centre for Research on Work Disability Policy (CRWDP). The launch took place on February 4 at McMaster University in Hamilton, Ont.

"This barrier is an ethical one that manifests itself in the attitudes of employers who, despite study after study and case example after case example, will not look beyond a person's disability when it pertains to hiring people with disabilities," said Onley, as he expressed his support for the new research centre.

The centre hopes to address the high unemployment rates of people with disabilities by exploring how current work disability policy in Canada can be improved to help PWDs find, return to and sustain work.

People with disabilities represent about 15.5 per cent of Ontario's population (similar percentages apply across the country), making PWDs the largest single minority group in the province. "It is also the only minority group that any single person can join at any time, through illness or accident, a visit to the doctor or, quite simply, getting older," Onley said.

This minority group faces challenges in the labour market. According to Statistics Canada's Canadian Survey on Disability, about 46 per cent of working-age Canadians with disabilities are employed, compared to approximately 80 per cent of working-age Canadians without a disability.

"For people with disabilities, this is not a Great Depression; it is a perpetual depression," Onley said.

According to Onley, companies don't hire PWDs because they believe a number of myths: namely, that PWDs have higher absenteeism and lower job retention rates, and that they come with high accommodation costs. Yet Onley pointed to three recent studies—a 2009 Compas survey, a 2010 Deloitte white paper and a 2013 federal report titled *Rethinking disABILITY in the private sector*—that all show the opposite: hiring PWDs is good for business.

"If you hire someone with a disability, you will probably be admired by your family, be recognized by some social group that gives you an award ..., all sorts of positive things like that," Onley said.

"But none of these are reasons to hire someone with a disability. The reason to hire is the same reason Kevin O'Leary [of Dragons' Den fame] would hire, and that is to make money. People with disabilities increase productivity."

How? According to the studies cited by Onley, PWDs have, on the whole, lower absenteeism rates and higher job retention rates. Their peers find working alongside disabled colleagues to be a rewarding experience, leading to happier, more productive workforces. And a better understanding of the disability community is good for business, given that 53 per cent of the population (in Ontario) either has a disability or an immediate family member with a disability.

Hiring PWDs also benefits society, Onley said. "Everyone benefits when PWDs are not reliant on government assistance but, rather, become something we should all be proud to be—taxpayers."

Onley is glad to see that the new centre recognizes more than research evidence is needed to achieve social change, and that people in positions of authority and leadership are also needed to speak up. "That is the challenge that I suggest we all need to take away," he said. "It's my hope that seven years from now [at the end of the centre's funded mandate], you will be able to, in effect, shut down for one simple reason: you have fully succeeded."

For a full report on the CRWDP's launch, including comments from other speakers, watch for launch highlights in the centre's next newsletter and postings of launch notes on its website: www.crwdp.ca.

At the Centre for Research on Work Disability Policy (CRWDP) launch at McMaster University on Feb. 4, 2014, from left to right: Dr. Charlotte Yates, Dean of Social Sciences, McMaster University; Brent Herbert-Copley, Vice-President, Research and Research Capacity, Social Sciences and Humanities Research Council; Dr. Patrick Deane, President, McMaster University; Dr. Ellen MacEachen, Co-director, CRWDP; Her Honour Ruth Ann Onley; the Honourable David Onley, Lieutenant Governor of Ontario; Dr. Emile Tompa, Co-director, CRWDP; and Dr. Cameron Mustard, President, Institute for Work & Health.

Study finds supporting learner confidence to apply new skills key to effective training

IWH trial of office ergonomics training also finds little difference between in-person and online training

Health and safety training for office workers is more effective when it includes follow-up sessions to help learners apply their new skills and guide supervisors on how to support them in doing so.

That's according to a recent study from the Institute for Work & Health (IWH) comparing the effectiveness of different modes of delivering ergonomics training.

"Our study shows that both in-person and online training improve worker practices and postures to about the same degree," says IWH Senior Scientist Dr. Ben Amick, who led the study.

"However, both methods are more effective when followed up by enhanced training to increase the confidence of workers and supervisors in their ability to successfully identify problems and implement solutions."Amick presented his findings at an IWH plenary in January 2014.

Despite the continued reliance on training as a tool for improving practices, there still isn't much research done on the effectiveness of different modes of training, adds Amick. Practitioners continue to be divided over the pros and cons of e-learning and classroom learning. This study set out to compare the two, and to assess their effectiveness when followed up by additional in-person training designed to engage learners.

"Too often, people drop into an organization, do training and then leave," says Amick. "We don't think that's the right way to do training if your goal is to change practices. If you want to change practices, you need to focus on how to engage workers and managers, and support them to identify hazards and find solutions."

Follow-up component focuses on self-efficacy

To conduct the study, Amick's team recruited more than 400 office workers at five different multi-site education, municipal and utility organizations in the Greater Toronto Area. Workers participated in one of five training alternatives: in-person training only, online training only, in-person plus enhanced training, online plus enhanced training, or none of these. (The control group was given only a link to an ergonomics information page on the Ontario Ministry of Labour's website.)
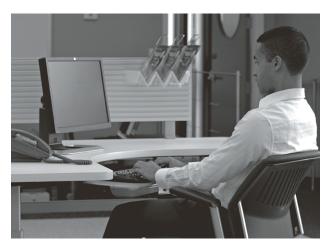
The classroom and online training covered the same evidence-based, standard-

compliant content, and both took about 90 minutes to complete—though online learners had the flexibility to go through the nine 10-minute modules any time they wanted during a two-week window. The enhanced component consisted of three 30-minute follow-up sessions, given to workers three months after the initial training.

In the enhanced sessions, learners first worked in pairs to do ergonomics assessments on one another, then supported each other to do assessments on colleagues who didn't take part in learning. The focus of this component was building self-efficacy.

"We found self-efficacy is the key to training effectiveness," says Amick. "It's about more than skills and knowledge. It's about building the learners' confidence to apply the knowledge, identify hazards and problem-solve. And it's about supporting a dialogue among workers about healthy computing."

Also part of the enhanced training was a 60-minute session given to supervisors and managers. The goals were to coach them in supporting a healthy computing culture, to help them understand the importance of role-modelling, and to build their own self-efficacy.

Training makes a difference

The study measured several outcomes three, six and nine months after the training. These included ergonomics knowledge, postural risk (as assessed by ergonomist observation), appropriate workstation adjustments and pain symptoms. It found that, in most measures, the groups that received training scored better than the control group, which received none.

And across most measures, the groups receiving the enhanced training continued to make improvements—even after the others, who didn't receive enhanced training, had reached a plateau.

"When self-efficacy starts working, people continue to improve," says Amick. "That's reinforced by the practices they're adopting, and we think it's reinforced by the supervisors and co-workers."

The online office ergonomics training program tested by Amick's team will now be submitted for certification to the Canadian Standards Association, and will also be made available through Ontario's health and safety associations.

You can watch Amick's full presentation on the study at: www.iwh.on.ca/plenaries/2014-jan-28. ◼

Safer needles rollout study identifies factors for implementation success

Good communication, gradual transition and outside support pave way for new technology

Regulations are a powerful tool to promote the adoption of health and safety practices and policies. But regulations alone may not produce intended results. How regulations are implemented matters.

That was one finding from an Institute for Work & Health (IWH) study on an Ontario regulation to reduce needlestick injuries in health-care settings. Lead researcher Dr. Andrea Chambers presented a plenary on her study at IWH last November.

It examined how three Ontario acute-care hospitals responded to a 2007 regulation requiring health-care organizations to replace conventional needles with safety-engineered needles.

"The effectiveness of the regulation depended on a complex interplay of factors, including the technology itself," says Chambers.

The risk of needlestick injuries

The danger of needlestick injuries has long been a cause for concern in the health-care sector. In the busy and bustling setting of front-line health-care work, getting injured with a needlestick is a constant risk. A lab technician might jab herself when a patient makes a sudden move just as she's trying to withdraw blood. A cleaner might be pricked when he's removing bed linen or replacing overfilled disposal bins. An emergency room nurse might step on a needle that has fallen unnoticed during a traumatic event.

In Statistics Canada's 2005 National Survey of the Work and Health of Nurses (conducted before the regulation was established in Ontario), nearly half of surveyed nurses reported being injured by a needle or another sharp tool at some time during their career. Eleven per cent reported such an injury in the previous year.

When needlestick injuries involve blood exposure, workers face the risk of contracting a potentially life-altering disease such as hepatitis B, hepatitis C or HIV. Though the chances of infection are low—and even lower with post-exposure monitoring and treatment—such incidents carry potentially large psychological consequences.

In 2007, Ontario introduced a regulation under the *Occupational Health and Safety Act* requiring health-care organizations to phase out the use of conventional hollow-bore needles starting in 2008. The bill gave organizations considerable flexibility. "It was up to organizations to decide whether to carry out a needs assessment, what needles to adopt and what training to offer staff," says Chambers.

The three acute-care hospitals she studied had different success rates in reducing needlestick injuries. Comparing the year prior to the transition to three years post-implementation, the decline in needlestick injuries was 37 per cent at one hospital, 57 per cent at another, and 80 per cent at the third. Through their stories, Chambers was able to identify those factors that contributed to greater and lesser degrees of success.

Overcoming implementation challenges

As one would expect with any systems change, initial resistance was seen across the three hospitals. The surprise for Chambers, however, was the level of resistance among nurses.

"I was surprised in the sense that this regulation was intended for nurses," she says. "It was introduced after years of lobbying by nurses' unions and associations."

One of the hospitals reported product hoarding, where conventional hollow-bore needles were being stored to avoid the use of the new safety devices. All three reported incidents of workers not activating or physically removing safety features of the devices.

Through interviews with workers, Chambers learned that many of the new safety devices were seen as more awkward to use and, on occasion, interfering with sight lines.

"There was a conflict between the changes imposed by the new devices and the values shared by front-line workers about performance and productivity," says Chambers. "This demonstrates the importance of fit between new technology and the values of staff for the successful implementation of a regulation."

Chambers found a number of important factors across the hospitals were linked to the smoother implementation of the regulation.

Gradual transition: Two of the hospitals in the study chose to integrate safety-engineered needles before the regulation came into effect. Starting early and introducing the new needles in phases provided an opportunity to schedule the changes around other administrative and policy changes at the hospital, and also provided an opportunity to use more comprehensive implementation practices.

Good communication: One hospital in the study experienced considerable resistance to product change. Many among the staff did not like the new safety butterfly needles and, most importantly, did not feel they had been adequately consulted.

By contrast, another hospital launched a full awareness campaign prior to the rollout of safety-engineered needles to explain the rationale, timing and process for the change.

"The need for widespread consultation before product change is important," says Chambers. "Communication to all front-line staff and across all departments is key."

Vendor support: In all three hospitals, vendors played a key role. "Their services came at no cost and took some of the workload off the organization," says Chambers.

Vendor services included needs assessments, staff communications and product training. This external support was particularly helpful in implementing the regulation where resources and time were limited, adds Chambers.

To listen to the presentation by Chambers while viewing the slides, go to: www.iwh.on.ca/plenaries/2013-nov-19. ✚

MISSION

The Institute for Work & Health promotes, protects and improves the safety and health of working people by conducting actionable research that is valued by employers, workers and policy-makers.

Ontario

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Non-academic OHS sources enrich systematic reviews

IWH review team also finds workload a challenge when including grey literature in systematic reviews

In the field of workplace health, good evidence quite often exists outside scientific journals. Occupational health and safety practitioners exchange best practices via trade publications and conferences more often than they do peer-reviewed articles.

In recognition of this type of evidence—known as "grey literature"—an Institute for Work & Health (IWH) systematic review team cast a wide net when it looked for evidence on the successful implementation of participatory ergonomics (PE) programs. Grey literature refers to a broad range of sources outside traditional research publications, from conference papers and dissertations to blogs and wikis.

Despite the challenges encountered, the review team found benefit in stepping beyond the confines of a traditional systematic review to include grey literature, says Quenby Mahood, IWH's manager of library sciences.

"The main challenge was the time it took. The work needed at every step was considerable," says Mahood "Yet, in the end, many of the grey-literature sources we found met our content and quality criteria, and enriched the overall findings."

Mahood wrote about the review team's approach in *Research Synthesis Methods*, in an article that first appeared online in December 2013 (doi:10.1002/jrsm.1106).

Providing advice on including grey literature

Researchers doing systematic reviews are meticulous about having clear, transparent and reproducible methods throughout: on how to search the literature, how to decide what studies to include and how to grade them for quality.

A body of literature has developed on how to use peer-reviewed articles in systematic reviews. However, not much advice exists on including grey literature. "Part of our motivation in writing this paper was to share in detail our experience, which may help others facing similar challenges," says Mahood.

One challenge facing the team was how to design a search strategy to turn up as much relevant information as possible without overwhelming the project. The team consulted with stakeholders and narrowed their search to include magazine articles, trade publication articles, academic dissertations, institutional reports, consultant reports, book chapters and conference proceedings. Stakeholders identified these as the types of sources where PE information would likely appear.

Quenby Mahood

"That was one of the key messages we heard from stakeholders—that to not include grey literature would mean losing an important source of information," she adds.

The team decided not to include internet searches (such as a Google search) in its strategy. It would have been too difficult to deal with the large number of search results. Plus, the team was concerned that it would not be possible to reproduce the same search results in the future.

In the end, 52 of more than 2,100 identified articles made it to the last step of data extraction. They were of sufficient quality that reviewers felt confident in using them in their final messages about what makes PE programs successful. Of these, 19 were grey-literature sources.

"Including grey literature provided important contextual information that you might not find in peer-reviewed articles, such as detailed information on processes around participatory ergonomics," says Dwayne Van Eerd, principal investigator of the systematic review. "It really helped round out our understanding of this method of preventing musculoskeletal disorders."

For information on the PE systematic review, go to: www.iwh.on.ca/sys-reviews/ implementation-of-pe-interventions. ◘