

# outwork

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## The young and new on job most affected by heat stress: study

Study of work-related heat stress finds heat strokes, sun strokes and other heat illnesses spike over groups of days and disproportionately affect those on the job less than two months

On hot, sultry summer days, it's common to see labour ministries issue alerts telling workers to stay cool, drink a lot of water and take longer breaks if necessary. Public health officials will also urge people to stay indoors and check in regularly on their elderly neighbours.

If employers were ever to issue a workplace equivalent of such alerts, they should ask workers to keep an eye on their young colleagues—especially the new ones on the job.

According to a study by the Institute for Work & Health (IWH) on heat stress, young men working in manual occupations are most vulnerable to extreme heat. The more inexperienced they are on the job, the more likely they are to need time off work to recover from heat stroke, sun stroke, fainting and other forms of heat illnesses.

These heightened risks are seen even after accounting for the fact that this group of workers—young, manual labourers new to the job—are already at greater risk of work injury, says Melanie Fortune, a research associate at IWH and the lead researcher of the study on heat stress.

For example, manual workers accounted for 52 per cent of all lost-time claims, but they accounted for 59 per cent of all heat-related lost-time claims. Likewise, workers who were less than one month on the job accounted for 4.2 per cent of all lost-time claims. But their heat-related illnesses accounted for nearly twice that proportion, which was 8.2 per cent of all heat-related lost-time claims.

Fortune recently presented these findings at a meeting of the Ontario Ministry of Labour's occupational hygienists.

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### IWH welcomes new board member

**Dr. Michael Wolfson** joined the Institute for Work & Health (IWH) Board of Directors in June 2013 for a three-year term. Dr. Wolfson recently retired as assistant chief statistician at Statistics Canada, where he specialized in program review and evaluation, tax, pension and income distribution policies, as well as health information systems design and analysis of determinants of health. Dr. Wolfson holds the Canada Research Chair in Population Health Modelling, in the Faculty of Medicine at the University of Ottawa.

### IWH senior scientist appointed dept. chair

**Dr. Ben Amick**, IWH associate scientific director and senior scientist, has been appointed chair of the Department of Health Policy and Management in the Robert Stempel College of Public Health and Social Work at Florida International University. He'll be resigning his current appointment in the School of Public Health at the University of Texas in Houston, and assuming his new role in September. Dr. Amick's work as a senior scientist at IWH will continue.

### Honourable mention for IWH/NIOSH research

A joint systematic review from IWH and the U.S. National Institute for Occupational Safety and Health (NIOSH) won an honourable mention for the 2013 NIOSH Alice Hamilton Award, under the education and guidance category. The study on the effectiveness of health and safety training was led by IWH Associate Scientist **Dr. Lynda Robson**, with **Dr. Ben Amick**, **Emma Irvin**, **Amber Bielecky** and **Kim Cullen** also on the team.

The award is named for pioneer researcher and occupational physician Dr. Alice Hamilton (1869 - 1970). From all the papers published with a NIOSH author, one winner and one honourable mention is awarded every year in each of five areas. These are: education and guidance; engineering and controls; epidemiology and surveillance; exposure and risk assessment; and methods and laboratory science.

### A homecoming for new IWH associate scientist

Thirteen years ago, **Dr. Chris McLeod** was a master's student in economics hired by IWH for a three-year term as a research associate. Today, McLeod is back at IWH as an associate scientist. He brings with him an impressive body of work as co-research lead of the Partnership for Work, Health and Safety at the School of Population and Public Health at the University of British Columbia and content data expert for Population Data BC. McLeod was also recently named the recipient of the Canadian Institutes of Health Research (CIHR) New Investigator Award. The IWH's support back then, he says, "played a key role in my decision to pursue a career as a researcher in work and health."

WHAT RESEARCHERS MEAN BY...

# Epidemiology

## The cornerstone of public health, epidemiology investigates which groups in a population are affected by disease, and why

If you've ever wondered whether vegetarians live longer than meat-eaters, or why some people suffer from chronic pain and others don't, or what the health consequences are of working nights, you're asking the same questions asked by epidemiologists—researchers who work in the field of epidemiology.

Epidemiology is considered the basic science of public health. In simple terms, it's the study of who gets sick and why. "Epidemiology" literally means "the study of what is upon the people." The word comes from the Greek *epi*, meaning "upon," *demo*, meaning "people," and *logos*, meaning "study."

In the early days, epidemiology concentrated on studying diseases such as cholera. Today, epidemiology is applied to all kinds of health-related conditions—diseases (e.g. influenza, cancer, depression), health problems (e.g. obesity, high blood pressure), injuries (e.g. work-related, traffic-related) and social problems (e.g. gambling, domestic violence). Its role is to describe who is affected by these conditions, why, and what can be done to treat and prevent them.

### Population versus individual

A distinguishing feature of epidemiology is that it studies health-related conditions at the population level, as opposed to the individual level. A good way to understand this is to compare the differing approaches of clinicians and epidemiologists to diseases.

Doctors and other clinicians are largely concerned with the effects of disease within a single person. They work one-on-one with patients to diagnose problems and determine what can be done to make them healthier.

Epidemiologists, on the other hand, are concerned with how diseases affect society as a whole. They study groups of people to diagnose and respond to illnesses in populations: how many are affected (i.e. prevalence), who is affected and why (i.e. determinants of health), and what works and what doesn't to cure or prevent these illnesses at a societal level (e.g. treatment protocols, public health interventions).

Let's look more closely at how epidemiologists carry out their studies of disease and other conditions. To understand the "who,"

epidemiologists seek to describe what part of the population is affected. How does the prevalence of a disease vary by age, sex, ethnicity, income, geography, work role and so on? This analysis goes well beyond demographics. It might relate to genetic disposition, childhood exposure, living conditions and more.

### Difficult to find cause

Understanding who gets sick is often the first step in learning what factors might be behind why people get sick. Sometimes, epidemiologists rely on other fields of science to get to the "why." They might learn from geneticists that certain types of people are predisposed to an illness. That might then lead them to probe more deeply about other factors that might protect certain individuals within that group from the disease.

Although epidemiologists seek to understand the why, they rarely get to say "because." Researchers must clear many hurdles before they can pronounce the cause of a health outcome. How strong is the association between event A and outcome B? Does A always occur before B? Does B always follow A? If A is altered in some way, is B altered too, and to the same degree? The more researchers can say yes to these questions, the closer they get to being able to claim A is the cause of B.

These criteria for causation should give you an idea why epidemiological studies are so difficult to carry out. They're also why epidemiologists are often so circumspect when stating the findings of their research.

Many of the terms associated with epidemiological studies are covered in other "What Researchers Mean By ..." columns. For example, epidemiological studies can be observational or experimental, retrospective or prospective. Experimental studies include randomized controlled trials; observational studies include cross-sectional studies, cohort studies and case-control studies. For more on these terms, go to: [www.iwh.on.ca/what-researchers-mean-by](http://www.iwh.on.ca/what-researchers-mean-by).

Epidemiological studies are important. They form the bedrock for sound public health policies and strategies, thus protecting and improving the health of entire populations.

# Night and evening shifts linked to higher risk of injuries: study

## Higher injury rates found across age, sex and job type in rare study looking at risk levels by time of day

Whether you're a man or woman, young or old, doing manual or non-manual work, you'd be more likely to be injured on the job during the evening, night or early morning hours than during a regular daytime shift.

A recent study from the Institute for Work & Health (IWH)—published in the January 2013 issue of *Occupational & Environmental Medicine* (vol. 70, no. 1, pp. 49-56; doi 10.1136/oemed-2012-100920)—found that about 12 per cent of work injuries experienced by women and six per cent of work injuries experienced by men were attributed to the higher risk of work injury during evening, night and early morning hours.

This dovetails with the findings of a previous study in which IWH also took part. That study found 14 per cent of work injuries experienced by women, and eight per cent of work injuries experienced by men, were attributed to the higher risk of work injury arising from working nights (see *At Work*, Winter 2011).

The confirmation of an increased risk of injury during non-traditional work hours is important, says IWH President and Senior Scientist Dr. Cam Mustard, who led the study. But even more important, he says, was the ability to collect information on work injury by time of day for a very large proportion of the Ontario workforce, not just those in a particular workplace or job sector. This type of information has not been readily available in the past.

Given that 25 per cent of the Canadian labour force works outside the standard five-day, nine-to-five work week, being able to measure risk by time of day is crucial, Mustard says. It allows the prevention system to understand how risk fluctuates throughout the day, and also learn how to effectively address the elevated risks of shift work.

“The risk of working non-standard hours is relatively invisible, and a risk unrecognized

is a risk unmanaged,” he says. “Now we can shine a light on the problem and take a closer look at what is really happening and how to address it.”

The number of work injuries by time of day among workers aged 15 to 64 in Ontario over



Dr. Cameron Mustard

the five-year period, from 2004 to 2008, came from two different sources. The first was the Workplace Safety and Insurance Board's lost-time claims data, which includes information on date and time of injury.

The second was the National Ambulatory Care Reporting System, which records all emergency department visits in Ontario. These records indicate whether a person was injured at work, as well as the time of triage.

### Novel approach

To determine the total number of hours worked at what time of day in Ontario as a whole, which was needed to calculate rate of injury by time of day, the researchers used two Statistics Canada surveys. The Labour Force Survey let researchers determine total hours worked in the province over the five-year period. The General Social Survey, which periodically uses a diary format to collect information on time use, allowed researchers to distribute these total hours across the 24-hour clock.

“Our challenge was not counting injuries by time of day because we could get that information readily from workers' compensation and emergency department records,” explains Mustard. “The hard part was establishing the number of people working at various times of day. Our use of the StatsCan surveys was a novel solution to this challenge.”

The study found that the rate of work injury is lower during the daytime hours between 6 a.m. and 4 p.m. The rate of work injury outside of these hours goes up during the evening hours (5 p.m. to midnight) and early morning hours (midnight to 5 a.m.).

Researchers found that the risk of work injury increased during evening and early morning hours for both men and women (although more so for women), and among all age groups (although the risk was higher for workers 35 to 64 compared to those 15 to 34). They also found an increased risk of work injury during non-standard hours for all occupational groups—manual, non-manual or a mix of both (although more so for those in manual and mixed jobs).

“This study shows that the increase in work injury during non-standard working hours is not due to the nature of the work, but due to time of day,” says Mustard.

Why is risk higher at night? Mustard points to two possible factors. The first is worker fatigue due to sleep disturbance and/or long work hours. The second is lower levels of supervision and co-worker support during non-daytime hours.

To read the full open-access study, go to: <http://oem.bmj.com/content/early/2012/09/25/oemed-2012-100920>. ■



# New Brunswick's WorkSafeNB adopts IWH's safety culture yardstick

## Institute for Work & Health's Organizational Performance Metric chosen after study shows firms' scores on eight-item questionnaire correlate with claims rates

An eight-item questionnaire developed by the Institute for Work & Health (IWH) has now been adopted by WorkSafeNB as a benchmark tool to measure occupational health and safety culture among employers in New Brunswick.

WorkSafeNB is responsible for both workers' compensation and health and safety enforcement in New Brunswick. It recently teamed up with IWH to validate two safety culture assessment tools, including a questionnaire the IWH had developed in 2009.

That questionnaire, called the Organizational Performance Metric (OPM), was developed by IWH and Ontario's prevention system partners to measure leading indicators of health and safety performance in workplaces.

### Validation

In WorkSafeNB's joint validation study with IWH, the OPM was shown to correlate with historical claims rates. In other words, the OPM could correlate a firm's

past workplace injury experience with the firm's perception of its current health and safety policy and practices. The finding suggests the OPM may also be able to predict future performance. A summary of the study, recently published by IWH, can be found at [www.iwh.on.ca/other-reports](http://www.iwh.on.ca/other-reports).

"That exercise validated the OPM," says Barb Keir, director of Program Development and Evaluation at WorkSafeNB. "And that's why we moved to adopt it."

The decision meets a long-standing need at WorkSafeNB for a short and easy tool to assess key elements of safety culture in an organization. Since 2001, WorkSafeNB had been using a lengthy health and safety infrastructure measurement tool to do the job.

That perception tool had questions covering five fundamentals and 22 topics. It had to be administered to all employees, supervisors and managers in an organization, making the process very time-consuming.

"That survey was too complex and cumbersome," says Anne Lise Albert, assistant director of Program Development and Evaluation at WorkSafeNB.

### Two tools studied

The team did a scan across the country and found six surveys similar to what it had in mind, including the Institute's OPM. WorkSafeNB decided to create its own tool based on the six, and the result

was an 18-item questionnaire called the Internal Responsibility System Questionnaire (IRSQ).

Given that the Institute had the expertise and experience validating its OPM, WorkSafeNB asked a research team at the IWH, headed by Senior Scientist Dr. Benjamin Amick, to conduct a validation study of its IRSQ tool. The research team also took the opportunity to further study IWH's previously validated OPM.

Both tools were sent out to about 800 employers. These were asked to have an employee, plus either a senior manager or a supervisor, fill out both questionnaires.

About 250 firms responded to the full request, and another 80 had only one representative complete the questionnaires. WorkSafeNB then made its de-identified historical claims dataset available to IWH researchers to assess how the results of each tool were associated with past injury claims.

The results showed a strong correlation between OPM scores and five-year historical claims rates. Firms that had better OPM scores also had lower claims rates, including both lost-time and no-lost-time claims. The analyses suggest that firms that move up the OPM scorecard from weak to strong (from the lowest scoring to the highest scoring of the OPM's four categories) could reduce total claims by over 30 per cent.



Barb Keir, Director, Program Development and Evaluation at WorkSafeNB

### SAFETY CULTURE MEASURE

The Organizational Performance Metric (OPM) is a tool that asks respondents to estimate the extent to which an organization engages in a practice. The practices are:

- Formal safety audits at regular intervals are a normal part of our business.
- Everyone at this organization values ongoing safety improvement in this organization.
- This organization considers safety at least as important as production and quality in the way work is done.
- Workers and supervisors have the information they need to work safely.
- Employees are always involved in decisions affecting their health and safety.
- Those in charge of safety have the authority to make the changes they have identified as necessary.
- Those who act safely receive positive recognition.
- Everyone has the tools and/or equipment they need to complete their work safely.

# HR researcher and consultant Graham Lowe saw IWH grow over 10 years as scientific advisor

In contrast, the results found a weak correlation between the IRSQ and five-year workers' compensation claims rates. Michael Swift, a member of the IWH project team, said more research would be needed to determine why the OPM tracked well with compensation claims but the IRSQ did not. The two tools cover generally the same areas, with one key difference being the answer scales. In the IRSQ, respondents were asked about the extent to which they agreed or disagreed with a description of a health and safety practice. In the OPM, however, respondents were asked what percentage of time the practice took place at their firm.

"That's a key difference between the two questionnaires," says Swift. "And while we would need more research to know why the IRSQ didn't work, the answer may lie in that difference."

## Further questions

But Keir says she and her team at Work-SafeNB are not focused on why the IRSQ was not validated. "Our goal was to have an efficient and accurate tool." Given that the OPM has been twice validated, she adds, WorkSafeNB will use it as a benchmarking tool for the province's employers.

"I'm very happy that we now have this easy and short tool to use in our New Brunswick workplaces," says Albert. "I'm also extremely pleased with this relationship that we've got with the Institute. It has been a fantastic partnership."

On his part, Amick says his team still needs to do further research on the tool. What do respondents think about when they choose their answers? And what does it mean inside the workplace to move an organization from the bottom of the scale to a higher level?

"We are excited New Brunswick is an early adopter of the OPM. We have a great opportunity to provide people with a short and easy-to-use tool," says Amick. "This is just the beginning of the development and validation of a new tool." 📌

Over the 10 years Graham Lowe has been a member of the Institute for Work & Health (IWH)'s Scientific Advisory Committee (SAC), he has seen the Institute evolve its research agenda to keep ahead of the emerging trends in work and health.

"The Institute has grown and matured and positioned itself as a global leader in research and thinking on workplace health and safety," says Lowe, president of The Graham Lowe Group Inc., a Kelowna, B.C.-based workplace consulting and research firm. "It's just been steady progress every year."

In keeping with the SAC's three-term limit, Lowe vacated his seat on the committee after this year's meeting in May. The SAC is a 12-member advisory group that meets every year to offer feedback to the Institute on its research themes and direction.

Lowe points to research on vulnerable workers as an example of IWH staying current. "IWH now has significant knowledge about the risks of vulnerable labour market positions and can provide policy-relevant advice on how the occupational health and safety system can better address the needs of this growing segment of the labour force," he says.

Another example of the Institute leading the way relates to the framework of disability policy in the country, says Lowe. He remembers an SAC meeting several years ago where there was general agreement that the current

framework, put together decades ago, no longer meets the needs of a large portion of the workforce.

Fast forward to the most recent SAC meeting, where Lowe and other SAC members were pleased to hear of a new initiative by IWH researchers to head up an extensive research program on disability policy. The program includes the creation of a Centre for Research on

Work Disability Policy that will examine and make policy recommendations on Canada's work disability system. "Just to see that kind of project evolve over the years has been incredibly impressive," says Lowe.

A member of the SAC since 2004, Lowe brought extensive research and consulting expertise on human resource development, organizational change and performance, labour market trends and employment policy to the committee. "Graham Lowe is one of the most respected and trusted advisors to Canadian human resource professionals of his generation, as well as an

outstanding and original researcher," says Dr. Cameron Mustard, president of the Institute for Work & Health.

"We have been so very fortunate to have had the benefit of his enthusiastic, constructive and precise advice over the past 10 years — advice that has consistently predicted the important trends in employment arrangements and working conditions in the Canadian labour market," Mustard adds. "We owe Graham a great debt."



Outgoing scientific advisor  
Graham Lowe

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*"IWH now has significant knowledge about the risks of vulnerable labour market positions and can provide advice on how to address the needs of this labour force."*

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# Risk of repetitive strain injury different across gender in some fields: study

## Stark differences in RSI risk for men and women in sectors including construction, agriculture

Does the risk of a work-related repetitive strain injury (RSI) within an economic sector differ for men and women? This was one of the questions behind a study looking at gender and the risk of work-related RSIs in Canada, to be published in the *American Journal of Industrial Medicine*. As in previous studies, this study found that a higher percentage of women report work-related RSIs than men (7.5 per cent and 6.9 per cent, respectively).

“Our findings suggest that gender contributes to RSI risk in diverse ways based on job segregation, non-work exposures and, possibly, biological vulnerability,” says Institute for Work & Health Scientist Dr. Curtis Breslin, the lead researcher on the study. “More tailored, gender-specific approaches to RSI prevention may be warranted.”

### Sector comparison

Breslin’s study used data from Statistics Canada’s Canadian Community Health Survey over the period 2003-2005. The analysis was based on 89,000 respondents who reported working at least one week in the past year. It incorporated information on the self-reported prevalence of RSI, including whether the respondents attributed the cause of the injury to work activities.

The large size of the sample allowed researchers to look for links between work-related RSI and socioeconomic conditions, and between work-related RSI and types of work—all broken down by gender. They found that, in most industrial sectors, the risk of a work-related RSI was similar for men and women. But important differences in RSI were found in some sectors.

In a sector grouping arts, entertainment, accommodation and food services, men’s risk of RSI was 23 per cent lower compared to men working in the retail sector (retail workers were the comparison group in this study). However, RSI risk for women in

entertainment/accommodation was on par with RSI risk for women in retail. For men working in agriculture, forestry, mining and utilities, the risk of RSI was 25 per cent higher compared to retail. For women in these sectors, the risk of RSI was slightly lower when compared to retail.

A more dramatic gender difference was seen in construction, where the RSI risk for men was 65 per cent higher compared to retail, whereas the RSI risk for women was 28 per cent lower. Breslin says he was somewhat surprised by that discrepancy.



“That difference between men and women in construction—we wouldn’t have necessarily expected that,” he says. “We hear from the ministries of labour that the few women who do get into this work get injured because they’re basically using tools and lifting things that are designed for men. But when you look at it at the population level, there didn’t seem to be that much risk for women.”

That could be because men and women have different job tasks within certain sectors, including construction, notes Breslin. The study data did not contain that level of detail, however, so more research would be needed before he could say for sure.

For both men and women, the study found certain factors tended to be linked to work-related RSI. One of them was age. Workers between 15 and 24 years old tended to report the lowest levels of

work-related RSI, while workers in the 35-to-44 and 45-to-54 age brackets tended to report the highest levels. Women aged 45 to 54 reported higher levels of work-related RSI (10.8 per cent) than men and women in all other age groups.

Both men and women who found their jobs stressful also reported higher levels of work-related RSI. In fact, the prevalence of RSI among people who reported working in stressful jobs was nearly double that for workers in low-stress jobs (e.g. 10.2 per cent of women in high-stress jobs compared to 5.3 per cent of women in low-stress jobs).

Because this study used the same measure for work-related RSI across Canada, the researchers had a rare look at the prevalence

of RSI across provincial boundaries. Here, Breslin found a very stark contrast.

The risk of RSI was significantly higher for workers in British Columbia than in Ontario, with men facing 29 per cent higher risk and women 47 per cent higher risk. That’s after personal and work-related factors were

taken into account.

Possible explanations for this provincial difference are somewhat complicated, says Breslin. One might be how provinces deal with RSI in their programs and policies. For over a decade, B.C. has had stringent regulations on workplace ergonomics. Further research is needed to know whether higher levels of RSI symptoms in the province were what prompted lawmakers to tackle the issue in the first place. Or it could be that tackling the issue made workers more aware of RSIs.

“We can’t evaluate the extent to which the self-reported bias may be there. But we have to acknowledge it,” says Breslin. At minimum, the study points to the need for further investigation into the causes of the provincial differences. “This is the first time anybody has taken a look at the provincial differences,” he says. ■

# IWH research now has two new “applications”

## Mobile app versions of two IWH clinical tools now released

For clinicians treating patients with chronic non-cancer pain or workers with arm and hand injuries, making use of research is now as easy as swiping a touchscreen on a mobile device.

Two software applications have been designed to bring research from the Institute for Work & Health (IWH) to mobile devices such as iPhone and iPad. One is the Opioid Manager app. The other is an app version of the DASH Outcome Measure. Both are available at Apple's iTunes Store.

### Opioid Manager app

The Opioid Manager app was developed as an extension of the Opioid Manager, a tool physicians use before and while prescribing opioids to patients suffering from chronic non-cancer pain. Opium-based painkillers such as codeine, oxycodone and fentanyl come with higher risk of addiction and overdose. But despite the danger, prescriptions are up. In Ontario, the number of opioid prescriptions written for people receiving workers' compensation benefits has doubled over 10 years, according to the Workplace Safety and Insurance Board (WSIB).

The Opioid Manager helps physicians determine a safe course of opioid prescription for their patients. Condensing key elements of the *Canadian Opioid Guideline*, the tool walks doctors through four key clinical areas: how to assess a patient's need for the drug, how to try out a prescription, how to monitor the treatment, and how and when to wean the patient off the drug.

Dr. Andrea Furlan, the IWH associate scientist who developed the Opioid Manager and helped develop the guideline, says she's heard good feedback from people who've downloaded the app since its launch in September. “Some say it helps them remember what they need to document,” says Furlan. The Opioid Manager app is available for

\$9.99. For more information, go to [www.iwh.on.ca/opioid-use-guideline](http://www.iwh.on.ca/opioid-use-guideline).

### DASH Outcome Measure app

The Disabilities of the Arm, Shoulder and Hand (DASH) Outcome Measure app is an extension of the most popular clinical tool developed by IWH to date. It's a touchscreen questionnaire that helps clinicians and therapists zero in on disabilities of the arm, shoulder and hand. It asks patients 30 questions about their physical function, their symptoms, and the impact of the injury on their daily activities. Do they have difficulties carrying the groceries or pulling a sweater over their head? A shorter version, the *QuickDASH*, is also available as an app setting.

The app idea came from Kenneth Wilson, research and education director at a group of rehabilitation clinics based in St. Louis, Mo. Wilson was doing quality assurance work on the clinics' outcomes data when he noticed a 40-per-cent error rate in how therapists were scoring their patients. He realized then that there was a need for an app to make scoring automatic.

The DASH app lets patients directly enter responses, then automatically calculates and summarizes the scores in a report. A unique patient identification number lets therapists track a patient's scores over many visits. The summary and cumulative reports can be viewed directly on the iPad or saved as exportable files that patients can receive via e-mail. Patients' records are stored under numerical identifiers instead of names to ensure privacy.

There has been growing interest in both the DASH and *QuickDASH* in the U.S. As of July 1, 2013, professionals who treat people covered by Medicare must submit patient outcome measures in order to get reimbursed. The American Physical Therapy Association has recognized both the DASH and the *QuickDASH* as assessment tools that could be used to report the required outcomes.

The DASH app is sold for \$4.99. Go to: [www.dash.iwh.on.ca/app](http://www.dash.iwh.on.ca/app). ➤

## What's new at [www.iwh.on.ca](http://www.iwh.on.ca)

Weekly and monthly Research Alerts help you stay abreast of current scientific literature—from the Institute for Work & Health (IWH) and beyond—in the areas of occupational health and safety, return to work, workers' compensation and more:

[www.iwh.on.ca/research-alerts](http://www.iwh.on.ca/research-alerts)

Topic links are now available from the IWH Research page—bringing together IWH information on current issues such as newcomers, shift work and temporary agency work:

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Missed an IWH plenary that you really wanted to attend? Slidecasts of most IWH plenaries from 2012 onwards are now available in the archives:

[www.iwh.on.ca/plenaries](http://www.iwh.on.ca/plenaries)

The DASH Outcome Measure and *QuickDASH* are now available as an iPad application:

[www.dash.iwh.on.ca/app](http://www.dash.iwh.on.ca/app)

An app version of the Opioid Manager, which helps doctors safely prescribe opioids to people with chronic non-cancer pain, is now available:

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Here are a few easy ways to keep up on IWH research, news, events and more.

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The Institute for Work & Health conducts and shares research that protects and improves the health of working people and is valued by policy-makers, workers and workplaces, clinicians, and health & safety professionals.

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# Highest risks of heat stress found among government service workers

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Looking at job tenure, Fortune found that workers on the job from one to two months accounted for 5.9 per cent of all lost-time claims, but 9.0 per cent of all heat-related lost-time claims.

“That matches what we know about the importance of workers being acclimated to their work environments,” says Fortune. Someone working actively in 32-degree Celsius temperatures, for example, wouldn’t feel the heat effects as severely after two weeks as on the first day.

“But, for new workers who come into heated environments or labour conditions to which they’re not acclimatized, we expect that they’d be more at risk,” Fortune says.

## First of its kind

The study, the first of its kind in Canada, was a descriptive study with the main objective of painting a portrait of work-related heat stress in Ontario: how often it happens, who faces the most risk and when cases happen most frequently.

With climate change expected to bring up the number of more unbearably hot days, Fortune hopes this study will help policy-makers and employers focus their intervention efforts.

The study was carried out using two sets of population-based data. One was hospital emergency room (ER) records where the visit was recorded as work-related. The other was lost-time claims across Ontario for the period of 2004 to 2010, obtained from the Workplace Safety and Insurance Board.

In the seven years covered by the study, emergency rooms in Ontario treated 785 cases of heat illnesses incurred at work. During that time, workers filed 612 lost-time claims for heat illnesses.

The monthly incidence rates of heat illness were 1.6 per 1,000,000 workers according to ER records, and 1.7 per 1,000,000 workers according to claims data.

One of the more notable findings in the study was the fact that the illnesses tended to occur in clusters. The ER visits and lost-time illnesses occurred on just 12 per cent of all days during the seven-year period.

More than half—55 per cent—occurred during groups of more than one day. One particularly hot spell over two days in August 2006 accounted for 101 instances—or 13 per cent of all heat-related ER visits in the seven years.

“We know from other research that after a heat exposure, our bodies really need time to recover,” says Fortune. “Let’s say we have a string of hot days, and you don’t have air conditioning at home and you drink a beer after work to cool down, your body may not have recovered

when you go back into work the next day,” Fortune says.

## Risk levels by sector

The data also allowed Fortune to examine the sectors with the highest risk of heat stress. Workers in government services accounted for 14.6 per cent of all heat illnesses, which was 2.3 times higher than their share of 6.3 per cent of all injuries. That ratio—of 2.3 for government workers—was the highest of all the sectors. Agriculture had the second highest (1.9), followed by construction and business service, both at 1.4.

The finding did not surprise Fortune. The sectors highest on the list were those with a lot of outdoor work. Government services included workers who maintained parks, fought forest fires and collected trash. “There are many folks in the public sector who work outdoors,” says Fortune.

This study is the first in a series looking at heat stress. Fortune’s next study will look at which communities across Ontario are most at risk of work-related heat illness, and how the cases correlate with the weather. ■

