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MISSION STATEMENT:
To foster a climate of excellence, innovation and partnership, enabling Ontario Occupational Health nurses to achieve positive workplace health and safety objectives.

ONTARIO OCCUPATIONAL HEALTH NURSES ASSOCIATION
Suite 605, 302 The East Mall
Etobicoke, ON M9B 6C7
Tel: 416-239-6462
Fax: 416-239-5462
E-mail: administration@oohna.on.ca
Website: www.oohna.on.ca

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The Environment — from Al Gore’s thought-provoking documentary, “An Inconvenient Truth” to the latest in “green” advertising and corporate “greening” policies — the time for the “Boomer Generation” to find productive solutions to environmental problems is now. The OOHNA Journal is pleased to welcome the author of our new environment column, Andrew Sebestyn, Industrial Hygienist and Manager, Corporate Environment, Stelco. Andrew will be focusing on a variety of environment topics such as internal/external environments, environment nursing and legislation. Questions and article suggestions regarding the environment are welcomed. Please e-mail them to the managing editor at journal@oohna.on.ca.

While it’s exciting to introduce a new column, it is with regret that The OOHNA Journal is retiring the column “Ask CNO”. The College indicated to editorial staff that 2006 would be their last year contributing to this publication. Their articles have been very relevant and well received by readers. On behalf of the Board of Directors, the Editorial Committee and readers, I thank the College of Nurses of Ontario for their support.

With summer in the offing, I want to encourage OHNs to take advantage of the Nurse Externship Program. Supported by six Ontario universities, this program places third year nursing students in the workplace where they gain exposure to Occupational Health and Safety. It’s a win-win situation: the workplace gets enthusiastic students and Occupational Health Nursing is showcased to potential future OHNs. To learn more about the Nurse Externship program, visit www.oohna.on.ca and click on “continuous learning” then choose “student opportunities”; e-mail administration@oohna.on.ca; or call me.

Under the auspices of seasoned educators and long-time OOHNA members, Patricia Kent and Jane Lemke, I’m pleased to say that a series of eight occupational health workshops will be offered over two years at various times during the year and at various locations in the province. For more information visit www.oohna.on.ca and click on “continuous learning” then choose “OOHNA workshops”.

By the time this publication is in readers’ hands, you will have received the brochure for Ideas and Innovations, the 36th Annual OOHNA Conference, being held in Niagara-on-the-Lake, June 20-22. It’s a three-day conference packed with sessions and keynotes reflecting the diverse nature of Occupational Health Nursing.

Attending Ideas and Innovations is key to occupational health nurses’ continued professional improvement.

See you at conference!
Traditionally, the field of Occupational Health has focused on exposures to chemical, biological and physical factors in the workplace to ensure that workers remain healthy during their entire working career with no lasting effects after they retire. Occupational Health dealt with exposures originating from or during the course of performing a job in the workplace.

The majority of exposures come "from" a process and can be related to the chemicals used in the process, the by-products produced or the nature of the process that may affect physical conditions such as ergonomics. Exposures “during” a job can indeed have an environmental component. For example, working outside in the hot sun can increase the heat stress on a worker. The sun is not part of a process, but it is an environmental factor that can affect a worker’s health, and must be controlled to protect the worker.

Professions such as Occupational Health Nursing or Industrial Hygiene have recognized for many years that an employee’s health is influenced by both occupational and environmental factors, on and off work. This has led to a merging of occupational and environmental health. Occupational health nurses study environmental factors that can affect a worker’s health and has led to the concept of “wellness” where employees are advised on lifestyle choices to maintain their health both on and off work. Similarly, occupational hygienists and physicians have expanded their understanding of environmental factors and exposures and take into consideration “non-occupational” exposures when assessing a worker’s health.

Emerging concepts, acknowledged by professions, often take some time to be incorporated into legislation. Governments have maintained a separation of Occupational Health and Safety from the Environment, often described as the indoor environment and the outdoor environment. In Ontario, the Ministry of Labour (MOL) deals with health and safety concerns under the Occupational Health and Safety Act and Regulations, while the Ministry of the Environment (MOE) deals with chemical releases and impacts to the air, water and land under the Environmental Protection Act and regulations. The MOL is concerned with the internal environment and MOE is concerned with preventing damage to the external environment, largely ignoring human health.

Similarly, the Federal government addresses environmental health concerns with the Canadian Environmental Protection Act (CEPA 1999), its primary piece of environmental protection legislation. It is defined as “An Act respecting pollution prevention and the protection of the environment and human health in order to contribute to sustainable development.” Part of CEPA’s mandate is to review and regulate the release of toxic chemicals into the environment based on the scientific evidence of their effect on human health. A variety of other Acts, including the Pest Control Products Act, the Food and Drug Act or the Hazardous Products Act, regulate the availability and potential exposure to hazardous products. Again, there is a separation of the external environment from the internal environment (workplace or home).

Despite this black and white separation of occupational and environmental legislation, there has always been a “grey” zone. Where does occupational health stop and environmental health begin? Can government agencies continue to view occupational health as the “internal environment” and environmental health as the “external environment”? Health professionals know there is a continuum and exposures can occur wherever people live and breathe. Human health is affected by exposures in a workplace or at home, and...
environmental contaminants can come from the community as well as an industrial process. For example, in most communities, the largest source of nitrogen oxides (NOx) in the air we breathe comes from road traffic, the cars that you and I drive, not from industrial sources.

Governments are beginning to recognize this concept in new legislation. Under CEPA, the Act itself must be reviewed every 5 years. CEPA is currently under review by the Standing Committee on Environment and Sustainable Development which interviews and listens to presentations from environmental experts and Environmental Non-Governmental Organizations (ENGOs) on strengths and weaknesses of the Act and the need for change. Once the hearing portion of the review is completed, the committee reviews the information and makes a decision on the need for revisions to the Act. The deliberations of the Committee can be followed on the CPAC (Cable Public Affairs Channel) on television. The question has been raised during this review (ENGO, 1999): “How can CEPA be strengthened to control exposures to toxic chemicals in all environments particularly for children and other vulnerable communities?” This leads directly to the integration of the internal and external environment.

To its credit, the Federal government has moved forward with a melding of the internal and external environment by tabling the Clean Air Act. The Clean Air Act is taking an integrated approach to environmental pollutants, greenhouse gases and indoor air pollution by implementing:

- A new guideline on radon that will be the basis for a national radon strategy;
- Additional measures to improve indoor air quality including identification and stricter regulation of a wider range of products that have negative impacts on indoor air quality.

The Clean Air Act has come under much public criticism for its perceived weak approach to the reduction of greenhouse gases, and this has overshadowed the attempt to reduce exposures to environmental pollutants, and the incorporation of the indoor environment into federal legislation, specifically the exposure to hazardous chemicals in the home.

Efforts to reduce energy consumption, and thus reduce greenhouse gas emissions, have led to the construction of tighter homes that reduce heat loss. Many older homes are being retrofitted with tighter windows and doors and high efficiency furnaces that have an independent supply of combustion air. An energy efficient house generally means less fresh air leakage into the home. This in turn can result in reduced dilution of gases and vapours that can be present in indoor air from various sources such as cleaning products, preservatives in carpeting, gas stoves or glues in particle board or plywood.
The Clean Air Act will have the legislative authority to control products that are used in the home or that are used in home construction to reduce the exposure to indoor pollutants. This authority may likely be used in conjunction with the recommended installation of heat exchangers that bring fresh air into the home while retaining the heat.

**CHEMICAL TOXICITY**

Which chemicals need to be controlled because of their toxicity? Under CEPA, dozens of chemicals have been reviewed and classified as either a Track 1 substance (shown to be environmentally persistent, bioaccumulative and toxic, and largely anthropogenic) that are scheduled for virtual elimination, or a Track 2 substance, which will subjected to Life-Cycle Management to control their release into the environment. At first glance, this list of environmentally hazardous chemicals to be eliminated or controlled appears impressive, but it is only a small fraction of all the chemicals used in Canada.

According to CEPA, since 1994, chemicals used in Canada must be registered on the Domestic Substances List (DSL). New chemicals that are added to the list generally go through a thorough review to evaluate their toxicity to humans and the environment, but thousands of chemicals existed in Canada when the list was compiled and have never been thoroughly evaluated. Under CEPA, a Chemical Management Plan was implemented to review the approximately 23,000 chemicals that were introduced to the DSL before the requirement for thorough environmental evaluation. This exercise was called “categorization” and was completed in 2006. Canada is the first country in the world to complete such a categorization of its chemicals.

We now know through categorization, that over 85% of the substances on the DSL do not need further action at this time. We also have more information than ever before on the remaining 4,000. Of these, approximately 200 are potentially persistent, bioaccumulative or toxic or have the greatest potential for human exposure, and these will be given a priority review to determine if they should be a Track 1 or Track 2 chemical. A review of the first batch of these chemicals has just begun in February 2007, with the rest being rapidly reviewed in succession. If a chemical is deemed to be an environmental risk to either humans or the ecosystem, it will be managed as a Track 1 or Track 2 chemical. And with the additional authority under the Clean Air Act, both the indoor environ-
ment and external environment can be addressed.

Ontario is also beginning to cross the traditional jurisdictional boundaries of occupational health and environmental health. More collaboration is occurring between the ministries of Labour, Health and Environment. In 2005, Ontario’s air pollution regulation was revised after a two-year consultation with stakeholders, including the Ministry of Environment, Departments of Health, industries and environmentalists. The new Ontario Regulation 419/05 – Air Pollution – Local Air Quality, uses health based emission limits designed to prevent human illness rather than environmental impact. It demonstrates the move to an integration of human environmental health with environmental contaminants, and a blending of occupational health knowledge and environmental health.

CONTROLS
While there is a move to integrate occupational and environmental health, control of emissions at the source is often more complex for environmental sources. In an occupational setting, emissions from a process can usually be identified easily and controlled in a variety of ways. Environmental contaminants are more difficult to manage and reduce for the following reasons:

(a) An inventory of source(s) of a contaminant may not be available. In Canada, the National Pollution Release Inventory (NPRI) requires that any emitter of specific contaminants above a certain threshold must report the amount of emissions to Environment Canada, which keeps an inventory that is available to the public. The list of contaminants is reviewed annually by a multi-stakeholder working group to determine if any additional chemicals need to be inventoried. Multiple small sources of a contaminant, that may have a significant environmental impact in combination, are not captured in the inventory. For example, although several industrial sources of Dioxins and Furans are on the inventory, the largest category of Dioxins and Furans emissions is “burn-barrels” that are used by individual rural homes to burn their garbage. Control of these multiple small emissions requires a concerted effort to find an alternate method of garbage disposal to reduce a significant source of toxic chemicals.

(b) Contaminants may be local in origin or from a single source, which can be managed relatively easily if identified, but contaminants may also come from multiple sources or travel a great distance, even across country boundaries. For this reason, atmospheric transport modelling of contaminants is done routinely in the environmental field. Only then can it be determined where the controls need to be placed to reduce airborne contaminants. For example, over half of the ozone or NOx that impacts Ontario comes from the Ohio valley in the USA, which has many coal-fired power plants and dense urbanization with many cars on the road. In this case, a reduction in emissions requires a collaborative effort between provincial and federal regulators, but also with foreign countries. This is often a long, complicated process involving negotiations with several jurisdictions until a solution is agreed upon.

The merging of the internal and the external environment means that a person’s activities in the workplace will not be separated from activities at home or off work. Health professionals have recognized for years that exposures from a hobby can be as important as exposures in the workplace. Likewise, exposures from the air that we breathe, the water that we drink and indeed the activity of simply living, all collectively affect our health, and must be considered when assessing health effects.

Andrew Sebestyen, CIH, ROH
(Andrew.sebestyen@stelco.ca) is an industrial hygienist and Manager, Corporate Environment with Stelco. He has been involved in the implementation and maintenance of an ISO 14001 registered Environmental Management System, and teaches at McMaster University’s Program in Occupational and Environmental Health.

REFERENCES
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Environment:

Dirty Electricity:
An Invisible Pollutant in Schools

By Magda Havas

“A s the school year began in the late summer of 2002, Mindoro Elementary School teacher and principal Angela Olstad was ready to call it quits,” wrote Emily Winter in her article “Dirty electricity at centre of debate” that appeared in the Aug. 2, 2006 issue of the Capital Times in Madison, Wisconsin.

“Since Olstad took the job at Mindoro three years earlier, she suffered from chronic illness and was eventually diagnosed with multiple sclerosis in April 2002. Other faculty members reported health problems as well, and 37 Mindoro students had developed asthma.

“Even after treating the school twice for mould, rampant illness persisted and its source remained a mystery.

“I was exhausted. I absolutely had no life for three-and-a-half years’ Olstad said. ‘I was afraid to go back.’

“But all that would change in October 2002,” continued the article.

In October 2002, the superintendent, Ron Perry, invited a power quality expert to measure the school for electrical problems. He found elevated levels of high frequency radiation on the wires in the school (commonly referred to as dirty electricity”) and installed Graham Stetzer (GS) filters to remove these high frequencies. The staff knew that an electrical contractor was working in the building but were unaware of what work was being done. Within days they began to notice marked improvements in their health.

In a letter posted on the website, www.electricalpollution.com, Char Sbraggia, the district nurse, documented some of these improvements after the GS filters were installed: “Teachers are stating they are less fatigued and tired … The students seem to have more energy and appear and seem less tired … Several staff who doctored regularly for allergies have not had to take medication or see their doctors because they are having less problems … Students who have been diagnosed with migraine headaches have had their headaches reduced, or no headaches at all.”

But perhaps the most impressive result was for students with asthma. Of the 37 students who required nebulizer treatments daily, only three students used inhalers for exercise-induced asthma before physical education classes after the filters were installed.

Two years later the results were the same. Absenteeism, due to illness, was reduced and students continued not to need inhalers and to have a lot of energy. According to district nurse Sbraggia in a follow-up letter on Jan. 14, 2005, “We are a much healthier school since the filters have been installed.”

The Wisconsin Department of Health no longer classified the school as a “sick” building and a lawsuit, initiated by the teachers’ union, was dropped.

Is the Mindoro school unique? No! The problem at the Mindoro school was dirty electricity generated by fluorescent lights, computers and typical office equipment like photocopy machines — equipment that is present in most North American schools.

I became aware of dirty electricity in 2003, when I was invited to do a study of a Toronto private school for students from Grade 1 to 12 with learning disabilities. A parent concerned about her daughter’s health and education initiated the study.

Scientific studies have repeatedly documented an


Editor’s note:
The Canadian contact for the Graham Stetzer(GS) filters mentioned in this article is Cammie Jacquays (info@getpurepower.ca).
increased risk of childhood leukemia associated with exposure to elevated magnetic fields. For this reason, it is advised that schools not be built near high voltage transmission lines, substations or transformers and that computer stations be reconfigured to minimize student exposure to magnetic fields. The Toronto school did not have high magnetic fields but did have high levels of dirty electricity.

Dirty electricity is a power quality problem that the utilities are concerned about because of the damage it does to sensitive electronic equipment, hence the need for computer surge suppressors. The GS filters are powerful surge suppressors that reduce dirty electricity in the four to 100kKz range. According to Guy Leavitt, the superintendent of Blair/Taylor School District in Wisconsin: “We did have a number of electronic failures in the district prior to installing the [GS] filters. Since installing them, we have eliminated nearly all of these types of failures. Over the three-year period we may have saved in the range of $40,000.”

I was unaware of studies showing that dirty electricity was harmful to human health and was sceptical that filters would alleviate the health problems in the school. I agreed to do the research because even a negative result has value in a scientific study.

We designed a wellness questionnaire based on an abbreviated list of symptoms common in radio-wave sickness or electrical hypersensitivity. Electrical hypersensitivity (EHS) was defined by the World Health Organization in 2004 as: “a phenomenon where individuals experience adverse health while using or being in the vicinity of devices emanating electric, magnetic, or electromagnetic fields… EHS is a real and sometimes a debilitating problem for the affected persons.” Teachers completed this questionnaire at the end of each school day documenting their energy, health, mood and performance, and another questionnaire documenting the behaviour of students in their last class of the day. This single blind study lasted six weeks.

To my surprise both teachers and students improved when the filters were installed. Teachers were less tired (50 per cent); less frustrated (45 per cent); less irritable (35 per cent). They had better health and more energy (30 per cent). During this period they had a greater sense of satisfaction and accomplishment, were more focused and experienced less pain.

Student behaviour also improved with the GS filters, especially in the elementary grades. Fewer students were late for class. It took less time to start class and less time was spent unproductively. Students were better

<table>
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<th>SYMPTOMS OF RADIO WAVE SICKNESS</th>
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<tr>
<td><strong>Neurological:</strong> headaches, dizziness, nausea, difficulty concentrating, memory loss, irritability, depression, anxiety, insomnia, fatigue, weakness, tremors, muscle spasms, numbness, tingling, altered reflexes, muscle and joint pain, leg/foot pain, flu-like symptoms, fever. Most severe reactions can include seizures, paralysis, psychosis and stroke.</td>
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<td><strong>Cardiac:</strong> palpitations, arrhythmias, pain, or pressure in the chest, low or high blood pressure, slow or fast heart rate, shortness of breath.</td>
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<td><strong>Respiratory:</strong> sinusitis, bronchitis, pneumonia, asthma</td>
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<td><strong>Dermatological:</strong> skin rash, itching, burning, facial flushing.</td>
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<td><strong>Ophthalmologic:</strong> pain or burning in the eyes, pressure in/behind the eyes, deteriorating vision, floaters, cataracts.</td>
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<td><strong>Others:</strong> digestive problems, abdominal pain; enlarged thyroid, testicular/ovarian pain; dryness of lips, tongue, mouth, eyes; great thirst; dehydration; nosebleeds; internal bleeding; altered sugar metabolism; immune abnormalities; redistribution of metals within the body; hair loss; pain in the teeth; deteriorating</td>
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able to focus, they were more active, less disruptive, and needed instructions repeated less frequently. Symptoms often associated with ADD or ADHD were behaviours that improved when the filters were installed.

Attention deficit disorder is one of the most common behavioural disorders of childhood — it accounts for two per cent to 18 per cent of school-aged children — and is increasing at an alarming rate. As of 1996, 2.4 million children in the US were diagnosed with ADD/ADHD, up from 950,000 just six years earlier according to the University of Maryland School of Medicine, in 2002.

An important question that needs to be addressed is, “Is dirty electricity in homes and schools contributing to ADD and ADHS?”

The results for the school in Toronto intrigued me and we repeated it at an elementary, middle and high school in Minnesota in 2005. A total of 45 teachers participated in this study, and because a new meter became available (a microsurge meter), we were able to get more detailed information about the dirty electricity in each classroom with and without the GS filters.

Approximately 40 per cent of the teachers improved after the GS filters were installed compared with placebo filters. This effect was statistically significant. Elementary student behaviour also improved significantly during this period. High school student behaviour did not change except in the computer labs where the highest amount of dirty electricity was recorded before filters were installed.

CONCLUSIONS

I am convinced that dirty electricity is contributing to the ill health of staff and students; that elementary-aged students are the most sensitive; and that this form of pollution may be significantly compromising the learning and working environment in schools. Dirty electricity refers to an electrical signal that deviates from a normal 60-Hertz sine wave. It is generated by modern electronic equipment that isn’t properly filtered, by equipment turning on and off and by arcing on electrical wires. Dirty electricity is a ubiquitous pollutant that has long been known to damage sensitive electronic equipments. Its effects on human health are just emerging.

Dirty electricity is a power quality problem and is likely to be present in most schools since they have fluorescent lights, computers and other electronic equipment that generate dirty electricity. Our studies show that young children seem to be the most sensitive to...
Dirty electricity is a power quality problem. Improves when this pollutant is removed. Many of the behaviours that disappear are those we associated with ADD and ADHD. Students with asthma and teachers with allergies also improve when dirty electricity is reduced. Sick building syndrome has been associated with poor indoor air quality but recent evidence suggests that dirty electricity may be a significant contributor to this phenomenon.

Although more research needs to be done, monitoring schools for electromagnetic pollution is an important first step to determine the extent of this pollutant in the school environment. Schools with high absenteeism due to illness are good candidates for initial monitoring. Cleaning up the problem is much less costly than removal of mould and may be a good first step in dealing with sick building syndrome at schools.

Although this article deals exclusively with dirty electricity, another form of electromagnetic pollution that needs to be addressed is radio frequency radiation from wireless technology. The major difference between these two forms of energy is that dirty electricity flows along wires and wireless RF, as the name implies, flows through the air. Antennas on or near school property, wireless computers, wireless microphones in classrooms to help the hearing-impaired — all expose students and education workers to radio frequency radiation. The long-term consequences are poorly understood because our exposure to this technology is so recent the few studies that are available suggest multiple health and biological effects near cell phone antennas including cancers, symptoms of radio wave sickness and impaired learning in school.

My recommendation is to err on the side of caution. We need to monitor schools for all forms of electromagnetic pollution and to mitigate exposure where levels are high. The health of students and education workers is too important to ignore. Monitoring and mitigating electromagnetic pollution is schools improves the school environment and may reduce ill health and learning difficulties.

Magda Havas, BSc, PhD is a professor in Environmental and Resource Studies at Trent University, Peterborough, Ontario.
Man Down - VSA

By Bruce McGoveran and Georgia Pollard

THE INCIDENT
At approximately 11:15 a.m. on the morning of 17 January 2007 a supervisor at the Whitby site of Liqui-Box Canada, a wholly owned subsidiary of DuPont, noticed the body of an approximately sixty-year-old man at the bottom of a flight of stairs ending at shop floor level. The man's eyes were partially open, but he was unable to converse and his level of consciousness appeared to be decreasing. By the time the plant's occupational health nurse, Georgia Pollard, arrived on the scene the man was unresponsive and vital signs were absent. The plant's occupational physician, Dr. Bruce McGoveran, was promptly summoned. The victim was noted to be VSA, unresponsive to pain and verbal stimuli, and the skin over his head and neck had developed a mottled appearance suggestive of critically low cerebral perfusion. Blood was evident on both sides of the man's head, and on the bottom stair, but not higher up the flight. As his collapse was not witnessed, no details on the events leading up to the victim's collapse were available. In particular, the responders did not know if the man's obvious posterior head trauma was the cause or result of his collapse. The situation was further complicated by the victim's close proximity (several feet) to a moving sheet roller producing approximately 90 dB of sound.

Regardless, the primary goal became resuscitation. 911 was called, and the plant's automated external defibrillator (AED) was ordered to the scene. We presumed the initial insult to be either pulseless ventricular tachycardia (VT) or ventricular fibrillation (VF) and proceeded to follow the appropriate Advanced Cardiac Life Support (ACLS) algorithm. With the assistance of nearby employees the victim was carefully moved several feet away from the stairs and the physician and nurse started two-person CPR. Breath delivery was facilitated by the use of a facemask. Upon arrival the AED was attached to the victim and activated. However, owing to the close proximity of plant machinery, the AED's instructions were not audible. As a result, the AED was disconnected and CPR continued. With the arrival of plant first-aiders, the AED was reattached and a first-aider was designated to listen to the AED and relay its commands to the CPR team.

Following its activation and analysis of the victim's cardiac rhythm, the AED advised a shock was indicated, and following a six second charge period delivered a 200J countershock, following which an organized rhythm was briefly detected. As the rhythm degraded, the AED advised that CPR be re-started. At one-minute intervals the AED prompted for CPR to be stopped temporarily to allow for a re-analysis of the victim's rhythm. In our case, following each analysis no shockable rhythm was detected, and continuation of CPR was advised. After approximately seven minutes the Whitby Fire Department arrived, by which time the victim was noted to have a carotid pulse. Paramedics arrived shortly thereafter, at which time EKG monitoring revealed sinus rhythm with a rate of approximately 80 beats per minute. Paramedics noted a blood pressure of 140/80. Spontaneous shallow breaths were also noted. He was taken from the plant shortly thereafter by ambulance to hospital.

THE OUTCOME
The victim was admitted to a coronary care unit following arrival at hospital. By mid-afternoon on 17 January he was alert, but disoriented to time and place. His level of cognition improved over the ensuing days. He was discharged from hospital on 21 January. It turns out this man has a significant history of coronary artery disease, for which he has been under the care of a cardiologist and was a candidate for coronary artery bypass grafting. He was not compliant with his cardiac medications, and sadly, despite this near-death experience, he remains non-compliant.

LESSONS LEARNED
Under the most controlled of circumstances the management of cardiac arrest is stressful and challenging. The absence of a crash cart, a fully-staffed arrest team, and ancillary monitoring equipment, and the presence of a noisy environment present additional challenges not generally considered in ACLS algorithms. Our experience on 17 January leads us to advise the following:

• Consider an AED program for your workplace.

Countershock remains the best intervention for pulse-
less VT/VF. AEDs have improved tremendously in reliability and affordability. There can be little doubt the countershock delivered in our case was pivotal in saving the victim.

• **Train plant personnel in AED use.** AED suppliers offer training courses of varying complexity for non-medical personnel. Liqui-Box, Whitby site trains enough employees to ensure at least one AED-trained first-aider is present for each shift. In our case, his presence was invaluable in allowing us to use the AED safely. Moreover, it may be the case that your workplace is not staffed full-time with medical personnel, leaving plant staff as the first line of response in a medical emergency.

• **Plan for the difficult resuscitation.** Consider periodic plant surveys as a means of identifying areas where resuscitation would be difficult. Awkward areas include those adjacent to moving equipment, those where access is limited, for example confined spaces, and those where physical, chemical, biological, or ergonomic exposures might impede resuscitation. In our case, we encountered multiple exposure challenges in the form of noise (physical) and the need to resuscitate from floor level (ergonomic).

• **Have a coordinated emergency response plan.** A successful response involves elements of both medical and non-medical personnel. Communication between the two groups is essential. In our case, plant personnel alerted 911, broadcast a call for help to plant first-aiders, attempted to gather information about the victim, and helped secure the incident scene. A coordinated response plan will spell out clearly the division of duties in advance.

• **Have a plan for disposing of biologic waste.** Our incident generated several pairs of bloodied gloves, in addition to blood on the shop floor. Similar incidents could produce vomitus, as well as contaminated airway devices, IV tubing, and sharps. When present, plant medical staff should be charged with their safe removal. In their absence, consider enlisting the help of external emergency services.

• **Audit post-incident.** Our review of the events of 17 January provided useful insight. For example, we had not anticipated the effect of nearby machinery on our ability to hear the AED. Our AED issues commands at 90 dB, a level more than adequate in everyday circumstances. In a plant environment, however, noise levels often approach this level. For this reason, we are exploring how best to integrate the rapid, safe shutdown of machinery into an emergency response. If this is not possible, the availability of someone with AED training to supplement the CPR team and inform it of AED commands is invaluable.

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**Bruce McGoveran**, MD MIST FRCP is an occupational health specialist in southwestern Ontario. He provides consulting services on a number of matters to private and public sector companies, large and small, unionized and non-unionized. He also lectures at the University of Toronto.

**Georgia Pollard**, RN recently made the transition from intensive care nursing to occupational health nursing. She is the plant nurse at Liqui-Box’s Whitby site.

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We had not anticipated the effect of nearby machinery on our ability to hear the AED.
Carcinogenic to Humans

It has been nearly 20 years since the United States Environmental Protection Agency (US EPA) published its 1986 Guidelines for Carcinogen Risk Assessment. In April 1996, the US EPA published a draft revision to the 1986 guidelines that incorporates substantial changes to the methods by which the ability of substances to cause cancer is determined, quantified and reported. These draft guidelines were finalized in March 2005.

Canadian professionals assessing risks associated with contaminated sites commonly consult the US EPA for information about the carcinogenicity of substances. This article highlights some of the most important changes in the revised guidelines.

CLASSIFICATION OF CARCINOGENS
In the 1986 guidelines, a weight-of-evidence alphanumeric classification system was used to describe whether a substance causes cancer in people. Canada uses a similar system, which was modified from those used by the International Agency for Research on Cancer. In the revised guidelines, the alphanumeric descriptors have been abandoned in favour of five narrative descriptors:

• carcinogenic to humans;
• likely to be carcinogenic to humans;
• suggestive evidence of carcinogenic potential;
• inadequate information to assess carcinogenic potential; and,
• not likely to be carcinogenic to humans.

When characterizing risk, the guidelines require that the hazard, the exposure and key information relied upon in the assessment be described.

The revised guidelines allow different characterizations of cancer potential for different exposure routes (e.g. ingestion, inhalation or dermal exposure). Under the 1986 guidelines, a chemical was classified by assigning a single weight of evidence classification (A, B1, B2, etc.) for all routes of exposure. Under the revised guidelines, a substance could be described as “carcinogenic to humans by inhalation,” but “not likely to be carcinogenic to humans following skin contact.” This change is significant, in that it will help exposure control measure focus on the routes of exposure that have the greatest relevance to cancer risk. It can also make cancer risk assessment more realistic by eliminating the need to consider exposure routes that do not contribute to risk.

WEIGHING OF EVIDENCE OF HAZARD
In assessments conducted using the 1986 guidelines, and in Canadian carcinogenicity assessments, tumour findings (in animals or people) are the dominant consideration in deciding how to classify chemicals with respect to carcinogenicity. Historically, for most chemicals, information has been very limited or absent with respect to mechanisms of cancer induction, structure-activity relationships and toxicokinetics (absorption, distribution, metabolism and excretion). Even when this type of information has been available, it has played a relatively minor role in the weight-of-evidence that the evaluation of carcinogenic potential consider all of the evidence available including understanding the mode of action, particularly, the mechanism behind increased susceptibility to cancer by sensitive receptor(s) and/or lifestage(s). In practical terms, the impact of this change will vary between substances, depending on the extent to which mechanistic, structure-activity and toxicokinetic, and other data are available. If such data are unavailable for an agent, the weight-of-evidence assessment rationale under the update guidelines does not differ significantly from the 1986 guidelines. However, the revised guidelines allow for these data to be used as scientific understanding improves in the future. An important feature of the new guidelines is the explicit consideration of children and the potential for cancer risk estimates to be based on different cancer potencies in children versus adults. It is important to note that the US EPA also published the Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (March 2005) which pro-
vides guidance on assessing risk from early-life exposure to potential or known carcinogens.

DOSE-RESPONSE ASSESSMENT

The dose-response assessment portion of a risk assessment is used to establish the relationship between human exposures (dose) and response (excess cancers). In essence, this portion of risk assessment defines the “potency” of the toxic agent. For the vast majority of substances, this procedure begins with data from animals exposed at high doses and seeks to establish potency in people at very low doses. This involves three procedures: dose scaling, selection of dose-response model, and low-dose extrapolation.

Under the 1986 guidelines, the default procedure for scaling doses from animals to humans for all routes of exposure involves using the ratio of body weights to the 0.33 power (this corrects for differences in surface area, which has been observed to correlate with metabolic rate for some substances). The procedure is illustrated in Equation (1), where $D$ represents dose (units of milligrams per kilogram of body weight per day) and $BW$ represents body weight (units of kilograms). The subscripts $a$ and $h$ refer to animals and humans, respectively:

$$D_h = (BW_a / BW_h)^{1/3} \times D_a \quad (1)$$

Under the new guidelines, the default approach for oral dose scaling uses an equation similar to Equation 1), but the exponent is changed to 3/4, consistent with recent data on the issue of allometric scaling. The new guidelines indicate that this change in exponent produces an unbiased, rather than a conservative, human cancer potency estimate, representing a departure from the 1986 guideline dose scaling procedure. Canada uses a similar approach to scaling oral exposures, at least for derivation of drinking water criteria for carcinogens (Government of Canada, 1989).

For inhalation exposures, the scaling approach shown in Equation (1) is no longer used as the default. Instead, the default method is to calculate human equivalent concentrations by considering such factors as inhalation rate and surface area of the affected part of the respiratory system for gases causing local effects, blood/gas partitioning for gases acting remotely, the respiratory deposition of particles and gases, and other information to estimate internal doses. The revised guidelines do not identify a default procedure for dose scaling of dermal exposures.

A second change in the dose-response assessment deals with selecting a threshold or non-threshold dose-response curve for low-dose extrapolation. Under the new guidelines, application of information about Mode of Action (MOA) is a key concept. The revised guidelines recommend that MOA information and toxicodynamic modelling be employed to provide information about possible relationships between tumours and precursor events. This information is used to provide insight about whether linear or non-linear approaches should be employed for low-dose extrapolation, as discussed below. Relevant non-tumour responses (biological events which precede an can lead to tumour formation) may be counted in addition to tumours when scoring responses under the 2005 guidelines. Such responses may include changes in DNA; chromosomes or other macromolecules; changes in signal transduction; and pre-cancer cell proliferation. These can be combined with tumour data or analyzed separately, as appropriate. This change opens the possibility of extending the measurable portion of the dose-response curve beyond the smallest dose observed to cause tumours.

Under the 1986 guidelines, the default procedure for curve fitting in low-dose extrapolation relied upon a mathematical model, known as the Linearized multi-stage Model (LMS). The LMS has been replaced by a simpler default method in the revised guidelines. The new method involved identifying the lower 95 per cent confidence limit on the lowest dose for which reliable data exist. For example, if the dose estimated to cause a 10 per cent increase in tumour (or relevant non-tumour) response (the LED10) lies within the range of observations, it could be employed as the point of departure for low-dose extrapolation. The default extrapolation procedure for genotoxic carcinogens, and for carcinogens whose mode of action is not known, is to fit a straight line from the LED10 back to the origin, and to use the slope of this line to estimate cancer potency at low doses. For carcinogens that follow a non-linear, or threshold, dose-response model, reference doses or reference concentrations are established in the same manner as for non-cancer effects.

CONCLUSION

The EPA’s 2005 guidelines for cancer risk assessment substantively change the way potential cancer risks to humans will be quantified and described by the agency.
The 2005 guidelines are generally based on conservative (public health protective) approaches, but permit risk assessors to incorporate new science related to the MOA for carcinogens. Of importance is that the 2005 guidelines specifically address understanding mechanistic data behind sensitivity to cancer by different receptors and/or at different life stages. One of the strengths of these guidelines is that they permit and describe requirements for justifying departures from default assumptions and procedures. They also require a full assessment, while helping to reduce the uncertainty in risk estimates arising through the use of inappropriate default assumptions (e.g., equal carcinogenicity by all routes of exposure; non-threshold model for all carcinogens). Together, these features make the guidelines immediately useful and adaptable to continuing advances in the study of carcinogenesis.

Ronald Brecher, PHD, DABT, Cchem
{rbrecher@globaltox.ca} is a founding partner of GlobalTox International Consultants Inc., based in Guelph, Ontario.

REFERENCES
Is Health Promotion Coming Back In Style?

By Liz Scott

Historically, occupational health professionals have had a strong desire to implement health promotion programs. However, employers focused on the bottom line and did not embrace spending money on health promotion. Were we as occupational health professionals simply ahead of our time or is Health Promotion coming back in style? Recently, we have seen articles about health promotion programs appearing in contemporary business literature indicating employer interest and participation is increasing. It is estimated that 67.8% of Canadian workplaces have some form of health program in place (McDonald, Csiernik, Durand, Rylett & Wild, 1997).

With rising extended health care and disability costs, employers are now seeing the importance of keeping their employees healthy. Healthy employees tend to have lower health care costs, less absenteeism, fewer Workplace Safety and Insurance Board claims and fewer Short Term Disability and Long Term Disability claims. Investing in worksite health promotion programs can save employers significant amounts of money.

INTERESTING DATA

- Preventable illness makes up 70% of all illness and the associated costs.
- The total cost of obesity to Canadian employers is $1.3 billion/year.
- Obese employees spend about 36% more on health services and 77% more on medications than people of healthy weight. That’s more than heavy smokers or heavy drinkers.
- Job stress is estimated to cost $200-300 billion annually in absenteeism, tardiness, and lost productivity.

In an article published by Wisconsin Public Health and Health Policy Institute (2005) the following table summarized the return on investment of health promotion programs at several large corporations:

<table>
<thead>
<tr>
<th>Company</th>
<th>ROI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coors</td>
<td>6.15</td>
</tr>
<tr>
<td>Kennecott</td>
<td>5.78</td>
</tr>
<tr>
<td>Equitable Life</td>
<td>5.52</td>
</tr>
<tr>
<td>Citibank</td>
<td>4.56</td>
</tr>
<tr>
<td>General Mills</td>
<td>3.90</td>
</tr>
<tr>
<td>Travelers</td>
<td>3.40</td>
</tr>
<tr>
<td>Motorola</td>
<td>3.15</td>
</tr>
<tr>
<td>PepsiCo</td>
<td>3.00</td>
</tr>
<tr>
<td>Unum Life</td>
<td>1.81</td>
</tr>
</tbody>
</table>

**Per dollar return on investment**

Documented savings are observed in medical costs, absenteeism, workers’ compensation costs, short-term disability, increased productivity and presenteeism (how productive the employee is during time on the job). Worksite health promotion programs also increase employee job satisfaction and aid in employee recruitment and retention (Zank & Friedsam, 2005).

Evidence continues to grow that well-designed and well-resourced health promotion and disease prevention programs provide multi-faceted payback on investment. Peer-reviewed evaluations and meta-analyses show that ROI is achieved through improved worker health, reduced benefit expense, and enhanced productivity. Goetzel, et al, 1999, in a meta-analysis of two-dozen articles summarizing economic evaluations of health and productivity management programs, finding an average return of $3.14 per $1 invested in traditional health promotion programs. Goetzel & Heaney (1997) further researched the necessity for individual risk reduction counseling for high-risk employees within the context of the broader program. They conclude that general programs aimed at all employees are not sufficient to achieve the desired outcomes.

Aldana reviewed 72 articles and concluded that health promotion programs achieve an average ROI of $3.48 when considering health care costs alone, $5.82
per $1 when examining absenteeism, and $4.30 when both outcomes are considered.

In a study conducted by Emmons, et al (1999) 2055 individuals participated in “The Working Health Project” demonstrated increased exercise behaviour and increased consumption of fruits and vegetables and fiber as a result of the health promotion program. The premise being that this alternate behaviour would lower overall risk.

A study conducted by Sorensen, et al (1998) demonstrated improved dietary patterns and drew the conclusion that workplace health promotion programs could have a large impact on cancer-related and coronary heart disease.

Of course a word of caution must be provided — negative results are less likely to be reported or published, thus biasing the ROI upward. Additionally the literature is not specific about the impact of the various program components.

Occupational health professionals can certainly use the emerging data and the strength of the published research to support the potential of a positive ROI for health promotion programs. The business case for health promotion programs is now well enough defined to use it to our advantage in formulating the business case for health promotion and wellness programs. Future research and exploration can focus on how to best combine comprehensive and focused interventions, the intensity of elements, and how to create a model that will achieve a target ROI.

ESTABLISHING THE PROGRAM
A certain level of planning must go into the development of health promotion programming. This can include data analysis, health risk appraisals, employee surveys and development of programs to meet those needs.

It is important to evaluate the data that you may have available to obtain an Illness and injury profile. This will assist in drawing the association between unhealthy lifestyle and modifiable risk factors. Modifiable risk factors are reported to account for at least 25% of employee health care expenditures (Anderson, et al, 2000). The most significant risk factors are usually stress, tobacco use, obesity, physical inactivity, excessive alcohol use, and poor nutritional habits.

Health promotion programs may include a health risk assessment (HRA) to evaluate each employee’s modifiable risk factors of disease. Interventions can then be targeted to those that are at increased risk through personal communications and individual follow-up (Chapman, 2004).

Health promotion programs aim to reduce the health risks of employees at high risk while maintaining the health status of those at low risk. A variety of disease management interventions are available to fit the specific risk profiles of various worksites. Insurers and corporations now seek to calibrate their interventions in order to achieve optimal risk reduction and cost effectiveness (Pelletier, 2001). Pelletier’s meta-analysis suggest that individualized risks reduction for high-risk employees within the context of comprehensive programming is the critical element in achieving positive clinical and cost outcomes in worksite interventions.

In 2001, Edington (2001) summarized the University of Michigan study that found programs designed to keep healthy people healthy would likely provide the greatest return on investment.

DESIGN OF THE PROGRAM TO MAXIMIZE ROI
The intensity of worksite health promotion programs range from bulletin board, pamphlet or newsletter information to onsite fitness facilities, health risk reduction classes, and personal lifestyle change coaching (Manning, 2004).

Comprehensive health promotion programs may include classes on health risk reduction and job safety, fitness and exercise activities, health club memberships, and reductions in co-payments or premiums. Many employers, as part of their efforts to contain rising health care costs, are implementing worksite programs variously described as health promotion, lifestyle programs, health and productivity management, population health management and, simply, wellness programs.

It is clear that health promotion programs need to target those at high risk and provide guidance to those that are considered low risk to ensure they do not adopt poor health habits.

In designing your program you need to assess the needs, then establish clear goals and objectives, identify the participants, define the activities and the link between the goals and the activities, determine a budget and the potential return on investment.

FURTHER THOUGHTS
Stay tuned while I go and dig out more research and ponder the fact that, occupational health professionals have always known health promotion can have an impact. We shall always be ready to implement and will resist asking “What took you so long?” — maybe.

Liz R. Scott PhD (lscott@orgsoln.com) is Principal of Organizational Solutions a firm that provides disability management services, a unique sick leave adjudication product and assistance to employers on a variety of health and disability issues. As an accomplished Disability Management professional she has been
recognized for award winning cost reduction results, “best practice” program designs, and her ability to solve a complex variety of disability concerns.

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INTRODUCTION
As part of an omnibus bill entitled Bill 171, Health Systems Improvement Act, 2006, introduced in the Legislature on December 12, 2006, the Ministry of Health and Long-Term Care (MOHLTC) has announced a package of comprehensive amendments affecting a variety of health care issues. For those not familiar with the term “omnibus bill,” it refers to an umbrella piece of legislation that makes additions or changes to a variety of existing statutes or creates new ones. Bill 171 has 17 Schedules, or separate sections doing just this, affecting such things as the Health Promotion and Protection Act, the Ambulance Act, the Health Insurance Act, as well as the Regulated Health Professions Act, 1991 (RHPA).

Specifically, Schedule M of Bill 171 contains amendments directly related to the Regulated Health Professions Act, 1991 (RHPA). The amendments were not totally reflective of the recommendations of the Health Professions Regulatory Advisory Council’s (HPRAC) report New Directions, which made major recommendations to the Minister of Health and Long-Term Care in 2006. The proposed RHPA changes are extensive and not all are dealt with here. Focus is directed instead at those changes of most interest to Occupational Health Nurses (OHNs). General themes are addressed first, followed by amendments specifically addressed to the nursing profession. At the end of this article, readers wishing to pursue the amendments in more detail are provided with resources to do so.

PRINCIPLE THEMES
A MOHLTC press release describes the amendments to the RHPA as designed to “simplify and improve the health regulatory colleges’ complaints process, increase public access to information from the health colleges, and provide greater protection to patients seeking out treatments from health care providers not regulated under the Act.”

Changes to the Complaints Process
The amendments call for the creation of a new Inquiries, Complaints and Reports (IRC) Committee for each health professional college. This committee will replace the current Complaints Committee and will also absorb the investigatory function currently undertaken by the Executive Committee. The creation of the IRC is based on the goal of simplifying the process so that patient complaints are streamlined through one committee. The IRC would have new

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By Wendy Sutton

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On request of the Minister of Health and Long-Term Care, the Health Professions Regulatory Advisory Council engaged in extensive consultations and produced a report for the Minister in April 2006. After consideration, in December of 2006, the Ontario government introduced comprehensive new amendments to the Regulated Health Professions Act, 1991 in the Legislature. This article provides a summary of the proposed changes to the legislation, with particular focus on their impact from the perspective of the Occupational Health Nurse.

Enhanced Provision of Information by the Colleges

The goal with these amendments is to improve the ability of the public to access information from the colleges. At the same time, it could be argued that the changes also constitute heightened regulation of the professions. In particular, colleges will be expected to make public, information regarding a member under investigation if it is believed that the public may be at risk. In addition to making information available to the public during a college’s regular office hours, each college is also required to have a website and publish information on it including the practice information of members, any restrictions a member has on his or her practice and any disciplinary action that has been taken against a member.

New Measures to Protect the Public

A significant change to the legislation involves the enhanced definition of the harm clause in the RHPA, which now refers to serious physical harm. The amended change would refer to “serious bodily harm,” incorporating a psychological component of harm previously not contemplated.

The mandatory reporting provisions of the RHPA have been expanded by the requirement that facility operators report members to their respective colleges if the operators have concerns about members' incapacity or incompetence related to their professional practices.

As part of ensuring that the public has access to quality care, several previously unregulated professions have been selected for inclusion in the RHPA. Naturopathy, previously governed by the Drugless Practitioners Act, now joins with Homeopathy to form a new college, along with new colleges incorporating kinesiology and psychotherapy. The latter is of particular interest from a regulatory perspective as HPRAC considered a model in which medicine, nursing and social work be considered in the psychotherapy realm so long as standards within those professions were consistent with the standards developed with the college of psychotherapy process.

Also reflective of the government’s HealthForceOntario initiative, are amendments to the RHPA that will require that colleges provide more detailed information about the numbers and practice locations of professionals they govern as a means of supporting health human resources planning.

Changes to Colleges

Of interest are the proposed additions to the objects of the colleges, which largely focus on enhanced quality assurance requirements. In this regard, new objects respecting interprofessional collaboration, and the requirement that colleges implement standards and programs to enable members to respond to environmental and technological changes affecting their practices and are able to be assisted and evaluated in the process of their practices have been drafted. One other proposed object involves the requirement that colleges promote enhanced relationships with key stakeholders, including members, other colleges, patients and the public.

For those readers who have followed previous articles on the issue of privacy, it is of interest that the new definition of “personal information” has been added to reflect the definition contained in the Personal Health Information and Protection Act, 2004. In addition, the confidentiality provision of the RHPA has been expanded to allow broader disclosure of information by colleges to outside sources, including to other professional regulators, and to the public.
about a member who might risk public safety or to facilitate a coroner’s inquiry.

CHANGES TO THE NURSING ACT, 1991

Due to changes in the titles affecting nurses, the Nursing Act, 1991 is subject to several changes. The term nurse practitioner is now protected and the term nurse anaesthetist has been added. The latter will still allow nurses to use similar titles, but there will be a requirement that the regulations related to this be met. In both instances, no one who is not a member of the College of Nurses will be able to use these titles. Section 11(4) will be repealed as the provision that allowed practical nurses to adopt the title of nursing assistant no longer has application with respect to restricted titles. Finally, the regulation making powers of the Nursing Act, 1991 have been amended to permit the College of Nurses to make regulations with respect to drugs that may be prescribed by members. Of note is a similar change that that allows the College of Midwives to make regulations with respect to drugs prescribed by that profession.

In addition, in relation to the new Psychotherapy Act, 2006, the Nursing Act, 1991 will be amended to authorize members of the College of Nurses to perform the new controlled act of “treating” (an addition to the existing controlled acts) by means of “a psychotherapy technique delivered through a therapeutic relationship, an individual’s serious disorder of thought, cognition, mood, emotional regulation, perception of memory that may seriously impair the individual’s judgement, insight, behaviour, communication or social functioning.”

OTHER CHANGES

Beyond the general changes mentioned above, there are a myriad of technical changes that will affect the operations of Colleges. For example, membership on a college council will now be limited to a total not exceeding nine years as compared to the earlier provision that stated that membership could not exceed nine consecutive years. It is also proposed that in addition to the public and members of a college, notice of college council meetings must also be extended to the Minister. And, due to the creation of the new ICR, many changes have been made affecting the functional and procedural requirements of college committees.

CONCLUSION

Those studying these amendments are of common belief that Bill 171 will be considered in the Legislature and passage if will take place this spring, before the Legislature rises and in anticipation of the planned election in October this year. This is relatively speedy management of legislation and, due to its importance, the process will likely include public hearings at the Committee level. Those interested in contributing to the Committee process in written submissions, should stay alert to the progress of Bill 171 on the MOHLTC website.

If you are interested in further information regarding the amendments as released, the following sources are suggested. The Ministry of Health and Long-Term Care website at http://www.health.gov.on.ca/english/public/legislation/hsb/hsb_mn.html you can access the Compendium that explains the amendments in detail as well as HPRAC’s New Directions report submitted to the Minister. The College of Nurses website also contains the submissions and recommendations made to HPRAC by CNO in October 2005, some of which, like the protection of the nurse practitioner title, have been adopted. See http://www.cno.org/docs/policy/legis_framewk_revu.pdf. The Ontario government website http://www.e-laws.gov.on.ca/home_E.asp?lang=en will take you to the Regulated Health Professions Act, 1991 in its current form.

Wendy Sutton, B.A., LL.B., LL.M. is a Toronto lawyer specializing in health law. She is Director, Professional Practices for the College of Dental Technologists of Ontario, President and founder of WM Sutton Consulting Inc., and a principal of coer.ca, which produces online educational seminars for the health and not for profit sectors. Wendy is Assistant Course Director of the part-time LL.M. program in Health Law at Osgoode Hall Law School. She is also an avid volunteer, particularly the health care sector, and is currently Chair of the Board of Governors of the Michener Institute of Applied Health Sciences. In 2004, she was appointed as Legal Chair of the Canada Pension Plan/Old Age Security Review Tribunal and, with Marilou McPhedran, Wendy co-
authored Preventing Sexual Abuse of Patients: A legal guide for health care practitioners.

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STATUTES

BILLS
Bill 171, Health Systems Improvement Act, 2006
Bill 171, Schedule Q: Psychotherapy Act, 2006
there are six “Cs” underlying the purpose and nature of health records: client-focused; clear; concise; comprehensive; chronological; and confidential.

In addition, the records should be legible, accurate, avoid duplication, and provide a reliable documentation of the care provided, and the client’s responses to same, to determine the most appropriate course of treatment.

Health records may be obtained and collected using any number of formats, including: charting by exception, worksheets and Kardexes, care plans, monitoring strips, flow sheets and checklists. Whether in electronic or paper format, quality record keeping is not only an integral part of providing nursing care that accords with the accepted standards of the profession, but it may also be the first line of defence against a potential claim.

Beyond the professional obligation to document a client’s health record, there is a legal obligation to safeguard and protect your clients’ personal health information. The law requires that health records be retained for a minimum of 10 years from the date that the client was last assessed and/or treated. However, if the client is under the age of 18 at the time of last assessment and/or treatment, the records must be retained for a minimum of 10 years from the time the client reached, or would have reached, 18 years of age.

This time requirement notwithstanding, the law on limitations provides that, with some exceptions (e.g. age of minority, incapacity and facts wilfully concealed from the claimant), no legal proceeding shall be commenced after the 15th anniversary of the day on which the act or omission on which the claim is based occurred [Limitations Act, 2002, S.O. 2002, c. S.24, Sched. B, s.15(2)]. Therefore, given this “ultimate” limitation period, it would be prudent to retain health records for a minimum of 15 years from the date that the client was last assessed and/or treated.

When the professional and legal obligation to retain information ends, the records should be destroyed in a way that is consistent with protecting and maintaining client confidentiality.

Kimberley ter Brugge, B.A. (Hons.), LLB (kterbrugge@mnwpb.com) and Theresa Hartley, B.A. (Hons.), LLB (thartley@mwpb.com) practice law at McCague Peacock Borlack McInnis & Lloyd LLP.

STATUTES
Limitations Act, S.O. 2002, c. S.24, Sched. B, s. 15(2)

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A tragic case resulting in a double fatality to workers of an Ontario contractor upon entering a confined space at Dofasco in 1997, sparked a comprehensive confined spaces entry regulatory review in Ontario. This review has culminated in new confined spaces entry requirements, which came into force effective September 30, 2006.

The process of updating and strengthening confined space requirements was initially expected to result in a single harmonized regulation for all workplace sectors covered by the OHSA (Occupational Health & Safety Act). However, the new structure for confined spaces regulation in Ontario has continued to utilize relevant existing sector regulations — the regulations for industrial establishments, construction projects, healthcare and residential facilities, mine and mining plants. This new structure which is now law consists of:

A generic confined space regulation (regulation 632/05) which has been created to impose confined space-related requirements for workplaces not covered by any specific sector regulation. This could include transportation workers or municipal workers performing work on roads, landfill sites, for example; and

Amendments to the industrial, construction projects, mines and mining plants, and healthcare and residential facilities regulations, which for the most part parallel the generic confined space regulation.

Some workers are exempt from this combination of generic and sector-specific confined spaces provisions. Those workers include: farm workers; divers performing diving operations; and firefighters and gas technicians holding specified certificates under the Technical Standards and Safety Act who are performing defined “emergency work” and who are already adequately protected with protective clothing, training and written procedures to protect the workers during the emergency work.

Each of the generic and sector-specific regulations sets out a comprehensive and detailed structure for employers of workers, constructors and a new workplace party defined as a “lead employer”. The structure of each regulation sets out detailed obligations, which include the following:

• Where a multi-employer workplace exists, i.e. where workers of one or more employer will perform work in the same confined space or “related work” near a confined space or in support of workers inside the confined space, a “lead employer” (or in the case of the construction regulations, the “constructor”) must prepare a coordination document to ensure that all confined space entry duties and responsibilities and requirements are met as between all of the employers and workers performing work in relation to the confined space. A “lead employer” is an employer who contracts for the services of one or more employers in relation to a confined space at the lead employer’s workplace or elsewhere;

• All employers whose workplaces include a confined space, must develop and maintain written confined spaces programs before any workers enter confined spaces. Programs must include, amongst other matters: methods for recognizing confined spaces; for assessing hazards to which workers may be exposed through competent personnel; methods for generic training of workers in confined space entry hazards; an entry permit system for confined spaces; proper assessment of

2. The information contained in this article is general information only and should not be relied upon as a substitute for legal advice or opinion.
hazards related to each confined space recorded in writing; means of protection from hazards including atmospheric hazards;

• Written confined space entry plans must be developed and implemented for the confined space before confined space entry. This plan shall include: written revisions for duties of workers; coordination between employers as necessary; on-site rescue procedures and rescue equipment and communication methods; atmospheric testing, ventilation and purging, amongst other matters;

• Both generic training in recognition of hazards associated with confined spaces, and specific training in the specific plan for entry must be provided to each worker entering a confined space or performing “related work” which includes work near or in connection with the confined space. Up to date written training records must be kept;

• Separate confined space entry permits must be issued each time work is performed in a confined space, before each worker enters the confined space;

• Employers at workplaces where there is a possibility of unauthorized entry into a confined space, must secure the confined spaces against unauthorized entry with barricades, warning signs, and other means;

• Written onsite rescue procedures must be developed and ready for immediate implementation, and rescue equipment must be readily available;

• Proper personal protective equipment must be provided to each worker who enters a confined space;

• An attendant must be assigned and stationed outside the confined space and in constant communication with workers inside the confined space, whenever there is a confined space entry.

Confined spaces-related requirements are complex, requiring review of applicable regulations and Ontario Ministry of Labour Compliance Guidelines for Confined Spaces which are now posted at http://www.labour.gov.on.ca/english/hs/guidelines/confined/index.html.

Cheryl A. Edwards, LLB (cedwards@sblawyers.com) practices with Stringer Brisbin Humphrey Management Lawyers.
BODY BASICS for breast cancer: Your guide to recovery and continued health.

By Robin Dunham

BODY BASICS for breast cancer is a short, easy to read guide geared towards women who have been recently diagnosed with breast cancer or are in the early stages of treatment and therapy. The book is authored by a physical therapist, which is evident as physiotherapy and physiotherapists are a recurring theme throughout the guide. The first 40 pages of the book provides valuable information on types of breast cancer treatment, rehabilitation (including prosthetic choices), stages of recovery and potential complications such as lymphedema. The latter half of the book details simple well-known facts that many occupational health nurses may find repetitive. The information ranges from the basic benefits of healthy body weight, regular exercise, proper nutrition (Canada Food Guide), smoking cessation, osteoporosis and alcohol use.

I was disappointed to see the symptoms of depression and anxiety discussed so late in the book and reviewed with very little detail. Depression was referred to only on page 82 and 83. The author acknowledges, in one sentence, the standard treatment for depression as “anti depressant medication and counseling” but then provides paragraphs of the benefits of exercise to the point of stating “Exercise is the miracle medicine”. The author also omits symptoms of pain and pain control measures in the book but references the well-documented benefits of laughter and its ability to boost endorphins “the body’s natural pain killers”. The pictures included are of real women who have been touched by this disease and allow the reader a personal look into their life.

Overall the book provides a positive, optimistic vision filled with inspirational wording, facts and references for breast cancer survivors and their families. The book has many easy-to-read tables and charts providing ‘handy reminders’ for the survivor and resource references that are useful for the OHN when providing reassurance and health teaching to employees and/or family support members affected by breast cancer. The book provides information that can empower breast cancer survivors to make educated decisions about their health and I would recommend this book for this purpose.

In the words of Karen Webb…. “Remember there is life after breast cancer — live it to the fullest”.

Robin Dunham, RN, OHN, COHN, is the Clinical Director for ClearMed consulting, an Independent Medical Evaluation Centre located in Hamilton Ontario. She is on the education committee for the Hamilton Occupational Health Nurses Association and has experience coordinating services at a WSIB Regional Evaluation Centre. She is also chairing a round table discussion at the upcoming OOHNA conference. Robin is in the process of finishing her Bachelors in Health Administration at Ryerson University.
Compassion begins at home

Is the cost of caring too much?

Since the onset of health care cutbacks and re-engineering initiatives in the mid-eighties the face of Canada’s hospitals has begun to change. Day surgery and out-patient procedures now provide services to all but the very sick. Nurses and other health care professionals within the in-patient setting, now work with only the most critically ill, long term care and dying patients. The intensity of their work has been amplified both by the care requirements of this patient population as well as the significant staffing reductions that have occurred over the past decade.

The toll is becoming evident, leading to new phenomenon among health care workers called ‘compassion fatigue’. Reported in the International Journal of Nursing Practice in June 2006, author Brenda Sabo of Dalhousie University reports on the rise in emotional and health related problems now being experienced by Canadian nurses.

The question we are compelled to ask is, “Is the cost of caring too much and how can we provide strategies for our nurses and allied health professionals to enable them to become more resilient?”

A care for the caregivers program, focused on assisting health-care professionals with the emotional and spiritual demands of their job, as well as putting themselves first, is one such strategy. Convincing nurses of the importance of such a program is not an easy task.

Men and women who are attracted to the health care professions often view self-care as a selfish act. Their call to service revolves around other people, and they forget that to care for self is a vital part of the recipe. In his book, Let Your Life Speak, author Parker Palmer states that “self care is never a selfish act; it is simply good stewardship of the only gift I have, the gift that I was put on earth to offer others”.

A medical metaphor, “What the Heart Knows,” captured in a story told by well-known American cardiologist Dr. Melmet Oz, helps to relay the importance of self-care and self first:

All of us know that our heart is the source of life, beating strongly inside of us, sending nutrients and oxygen to every part of the body. The heart also receives back the circulated blood and sends this to the lungs to be re-oxygenated and cleansed so the cycle can begin again. The cleansed blood leaves the heart through the ascending aorta, a large blood vessel that serves as the super highway of life. The first branch or exit from this highway is the cardiac artery which goes directly back to the heart, keeping the heart muscle strong and healthy so that it can continue to pump and serve the rest of the body. What the heart knows is that it must stay strong and vibrant if it is to serve the needs of the entire body, and that to do so it must feed itself first.

The lesson of this story, that each of us must care for ourselves first so that we can stay strong and healthy for those whom we serve, is an essential and critical message for today’s nursing professionals, especially when the signs suggest that our nurses are burning out from the physical, emotional and spiritual fatigue of their jobs. Compassion it seems must begin at home, with the self, if nurses are to avoid the compassion fatigue many of them are beginning to experience.

A NEW APPROACH

The problem is not going unrecognized. Recently, a number of health care organizations, including the Capital Health Group in Edmonton, decided to respond to the increasing number of stress reported illnesses by nursing staff. The Capital Health Care Group saw the need to connect staff to something larger than themselves as a strategy for addressing compassion fatigue. The result was a ‘spirit at work’ initiative designed and implemented to encourage staff to open their hearts to others, to appreciate the importance of the difference they make everyday and to see how kindness, gratitude and humility can enhance their work life.

In these programs, participants are encouraged to explore their inner needs and to explore their sense of
Compassion Begins With Me

Remember self-care is not a selfish act. Your health is critical in sustaining you and allowing you to fulfill your professional responsibilities in a sustainable way. Some strategies to build into your life:

Take Ten – Find ten minutes in everyday just for you. Do nothing. Breathe, reflect, STOP.

Priority List – Check what’s on your list. Where are you? If you are not on your list, get yourself on there. If you are at the bottom of the list, look for ways to push you higher. Do something every week just for you.

Have a Purpose – Re-visit your personal sense of purpose and your core values. Write them down. Remind yourself regularly about why you do what you do and how you make a difference in the lives of others.

Tame the Inner Voice – Check in with your inner critic and what she is feeding you. Re-program her/him and remind her of the things you do well and what makes you special.

Be attractive – See the beauty and abundance in your life. You will attract more.

Grieve – When you have experienced a significant loss, a patient or colleague, allow yourself the time and opportunity to experience the associated feelings. Write about it.

Seek Support – Turn to a support group, a coach or a counselor when you are feeling overwhelmed.

Be Creative – Find a creative outlet for yourself and give yourself the gift of time to pursue it. Get lost in painting, gardening, photography or decoupage.

Compassion in the Workplace

• Burn-out and stress leave is a "spiritual issue". Health-care organizations can offer staff in a number of preventative strategies to avoid compassion fatigue.
• Provide staff with a quiet/meditation room on site.
• Offer lunch time or after work meditation/visualization programs.
• Introduce staff education programs designed to assist staff in re-connecting with themselves and something greater than themselves.
• Bring more focus on one’s sense of purpose and core values into the workplace; how staff make a difference everyday.
• Provide health care teams with strategies for sustaining team spirit.

THE ROAD AHEAD

The challenge ahead is to convince today’s nurses, as well as the organizations in which they work, that they are worth the investment. Typically the individuals who choose nursing as a career define themselves through their ability to be of service to others, placing themselves at the bottom of their priority list, and frequently neglecting their own needs in favour of meeting the needs of others.

We are at a critical point. The challenge for both the nursing profession and health care organizations is to create a vision of long-term health for nurses — one that emphasizes the importance of spiritual support and offers them the necessary strategies for self care.

Betty Healey (resources@creativebound.com) is a speaker, coach, author, and former health care professional, specializing in Care for the Care-Giver. Her corporate consulting focuses on cultivating spirit and values in the workplace.
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