



## Nurses and Environmental Health: Survey Results

### BACKGROUND

As part of its centennial project on environmental health, the Canadian Nurses Association (CNA) applied for and received funding from Health Canada to conduct a survey of Canadian nurses to identify:

- their awareness of environmental health issues;
- their education about environmental exposures;
- their use of teaching resources with patients or clients;<sup>1</sup> and
- their perception of the sustainability of the health system in which they work.

The findings of this survey will assist in identifying gaps in these areas and will support the development of nursing educational modules to address these gaps.

### METHODOLOGY

A 17-question survey, based on the International Council of Nurses' (ICN) description of nursing's role in environmental health (Appendix A), was developed in English (Appendix B) and in French. An additional six questions focused on personal and professional characteristics of the nurses who responded. The survey was posted on the SurveyMonkey.com website during the first week of December, and responses were accepted until December 31, 2007. An invitation to complete the survey was disseminated through CNA's website, through associate and provincial/territorial members,<sup>2</sup> and through the members of the Environmental Health Reference Group.<sup>3</sup>

### FINDINGS

#### *Characteristics of the sample*

A total of 211 nurses completed the survey, 209 in English and 2 in French. Most of the respondents (91.4%) were registered nurses, and 7.7% indicated that they were advanced practice nurses.<sup>4</sup> One-third (33.3%) of those who completed the survey had a nursing

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<sup>1</sup> Throughout this report, *patient* refers to an individual admitted to hospital or another institutional setting; *clients* refers to individuals or families, or communities that work with a community or public health nurse.

<sup>2</sup> CNA associate members are national nursing groups that meet the criteria for membership in CNA. For a list of CNA associate members, please visit [http://www.cna-aiic.ca/CNA/about/members/associate/default\\_e.aspx](http://www.cna-aiic.ca/CNA/about/members/associate/default_e.aspx).

<sup>3</sup> Associate and provincial and territorial members of CNA were invited in May 2007 to join this reference group, which provides guidance for CNA's environmental health project.

<sup>4</sup> Advanced practice nurses are registered nurses who have received additional educational preparation in the application of advanced nursing knowledge.

diploma, just over a third (35.3%) had a BScN and 5.0% reported a bachelor's degree in another area. The remainder had a master's degree (23.4%) or a doctorate (3.0%). Most of the respondents (75.0%) were over 40 years of age. There was representation in the survey responses from each of the provinces and territories, with significant proportions of respondents working in Ontario (44.0%), British Columbia (29.0%), Alberta (18.7%) and Nova Scotia (17.0%); only 1.4% indicated that they worked in Quebec.

Just over half of the respondents (53.8%) worked in a hospital setting, 17.1% worked in community or public health, 7.1% were based in an academic setting, and 7.1% were employed in occupational health. The remainder worked in home care (6.7%) community health clinics (5.7%), long-term care settings (4.8%), rehabilitation (3.3%) and physician's offices (1.4%) (some respondents worked in more than one setting). In terms of the ages of their patients or clients, the respondents reported working with adults (48.3%), clients of various ages (34.8%), children (7.7%) and elderly people (7.7%). Two-thirds (66.3%) indicated involvement in environmental issues in their personal lives.

#### *Previous education or training in environmental health*

Slightly over a third of respondents (39.2%) had ever participated in an educational session on environmental health, whereas 41.4% had received training on reducing risks of exposure to environmental hazards. Educational or training sessions had taken place most frequently in Ontario (47.9%), Alberta (20.8%) and British Columbia (17.7%).

#### *Awareness of environmental hazards*

When asked about the environmental hazards affecting the populations with whom they worked, nurses most frequently mentioned the issues of indoor air quality (79.1%), environmental tobacco smoke (78.6%) and mould (68.4%). Approximately half of the sample reported that contaminated water (53.4%), smog (50.0%) and organic solvents (43.7%) could affect the health of populations with which they worked. Respondents also indicated concerns about risks to health from contaminated soil and lead (both 40.3%), as well as mercury in fish (36.4%). Exposure to waste anesthetic gases was identified as a health concern by a significant minority of the sample (26.2%).

The question about awareness of environmental hazards prompted 20.9% of respondents to add comments about other hazards. These were often very specific to the nurse's community, for example: "The Yukon directly receives a lot of air pollution from Russia given its geographical location in relation to jet streams etc." and "A pulp and paper mill, metal works, a coal fueled power plant, and ... tire plant are all in my community." Other nurses reported concerns about pesticide use and emissions from wood-burning stoves, as well as wastes from the hospitals in which they work.

Nearly a third of respondents (30.9%) indicated that they were aware of patients being admitted to their health care setting because of environmental exposures such as smog and contaminated water or for treatment of injuries related to specific products. Almost half of the sample (48.8%) were aware that legislation existed to protect the health of Canadians from environmental hazards. However, relatively few (17.5%) felt they had

the skills needed to engage in discussion of environmental policy issues such as cosmetic pesticide use.

#### *Teaching patients and clients about environmental health*

Just over half of respondents (56.2%) indicated that they had discussed environmental exposures with their patients or clients, whereas 31.4% had not done so; the remainder indicated that the question was not applicable to them. Of the 97 nurses who indicated that they had used a teaching tool to provide information on environmental hazards, 58.8% had used a fact sheet developed by a health care organization, 26.8% had used fact sheets developed by a provincial or territorial government, 24.7% had used the *It's Your Health* series of fact sheets produced by Health Canada, and 15.5% used other fact sheets developed by Health Canada.

Half of the respondents (50.5%) reported asking patients or clients whether they are exposed to environmental tobacco smoke as part of their nursing assessment.

#### *Sources of information used for professional development*

Respondents indicated that they sought information for their own professional development from a wide range of sources, particularly articles in journals (89.2%), the Internet (83.3%), workshops (69.6%), conferences (63.7%) and courses (50.5%).

#### *Working in a sustainable health setting*

Just over half of respondents (51.2%) indicated there was no green team at their workplace, 15.8% reported the presence of such a team and the remainder (33.0%) were unsure. Nearly a third (32.1%) reported that their employers did not have a purchasing policy that recommended replacing disposable products with reusable ones, and only 5.7% reported the presence of such a policy. However, 34.1% of the sample worked in a setting that had undergone renovations for energy efficiency. Over a third (36.7%) worked at a location where it was possible for nurses working evening and **night shifts to** take public transit to work.

## DISCUSSION

### *Characteristics of the sample*

Participants in the sample were slightly older than Canadian nurses as a whole: 75.0% of respondents but only 70% of all nurses in Canada (Canadian Nurses Association, 2006) were over 40 years of age. Respondents were also better educated than the nursing population: 23.4% had a master's degree (2.4% for all nurses) and 3.0% had a doctorate (0.1% for all nurses). Nurses from Ontario were overrepresented (44.0% of respondents, but 35.0% of Canadian nurses overall). Nurses from British Columbia (29.0% vs. 11.0%), Alberta (18.7% vs. 10.5%), and Nova Scotia (17.0% vs. 3.5%) were also overrepresented. Relatively few nurses in the sample were from Quebec (1.4% vs. 25.3%). A smaller proportion of nurses in the sample worked in hospital settings than is the case for all Canadian nurses (53.8% vs. 62.5%); the same was true for long-term care settings (4.8% vs. 11.5%). However, a greater proportion of nurses from the sample worked in academic settings (7.1% vs. 3.3%) or home care (6.7% vs. 2.9%) than is the case for all nurses in

the country. The percentage of the sample working in physicians' offices was nearly the same as for all Canadian nurses (1.4% vs. 2%) (Canadian Nurses Association, 2006).

In summary, nurses in the sample were older and better-educated than the Canadian average, were more likely to be working in academic settings and were more likely to be working in the provinces of Ontario, British Columbia, Alberta and Nova Scotia. The high proportion of academics in the sample may indicate nursing schools' interest in increasing the coverage of environmental health in their curricula. As a result, academic staff may be actively seeking out opportunities to become engaged in this area.

### *Environmental health*

Despite the relatively high proportion of nurses with graduate degrees in the sample, fewer than half had received any formal training in environmental health. For the most part, content on environmental health does not seem to be widely available in either undergraduate or graduate curricula. On the other hand, many of the respondents were aware of environmental hazards that could affect the population with whom they worked, and these nurses were accessing a range of teaching tools for use with patients or clients. It may be that nurses are independently identifying resources in environmental health to bolster their knowledge in this area because the individuals, families and communities with whom they work are being exposed to hazards that are affecting their health.

Given the health effects of exposure to environmental tobacco smoke, it is concerning that only half of the sample reported routinely assessing such exposure during nursing assessments. Although fewer Canadians smoke now than at any other point since smoking rates have been reliably documented, tobacco use is still a health issue for a significant minority of Canadians and should form a routine part of a nursing assessment (Health Canada, 2007).

The health concerns related to environmental exposures identified by respondents ranged from very specific issues related to organic solvents to more generalized concerns about community exposure to various industrial emissions with unknown health effects. In the latter situation, the community health or public health nurse could take on a surveillance function by monitoring patterns of health effects within the community. Given that nurses working in hospitals see patients admitted because of environmental exposures, it may be useful to support greater linkages between nurses working in these two settings, to provide a clearer overall picture of the health outcomes of environmental exposures in particular communities.

Half of the respondents were aware of legislation to protect the health of Canadians from environmental hazards, but few felt that they had the skills to engage in policy issues related to environmental health. "Policy encompasses the choices that a society, segment of a society, or organization makes regarding its goals and priorities and the ways it allocates its resources to attain those goals" (Mason, Leavitt & Chaffee, 2006, p. 3). Nurses have a long history of involvement in issues such as women's suffrage, public health, birth control and women's rights (Lewenson, 2006). In Ontario, nurses have been supported by their professional association to be active in developing cosmetic pesticide

bylaws in their communities. Nurses may need particular tools to support policy development in relation to environmental health issues, which might include policy practicums within nursing programs, particularly at the graduate level.

#### *A sustainable health-care system*

From the perspective of the nurses in the sample, hospitals appear to be actively engaged in becoming more energy efficient but less involved in exploring options for alternatives to single-use products. In contrast, hospitals in countries in the European Union are proposing to reduce environmental impact, while still controlling infection, by more strategic cleaning and the use of reusable products, as well as through appropriate processing of disposable (single-use) items (Daschner & Dettonkofer, 1997). This approach may be a direct result of the costs associated with disposing of waste in these countries (Bencko, Kapek & Vins, 2003). As costs for processing wastes rise in Canada, there may be more interest in exploring alternatives to single-use products.

Nurses can be key members of teams created within health-care facilities to reduce the institutions' environmental footprint. Several hospitals across Canada have established green teams with this goal, including Cambridge Memorial Hospital,<sup>5</sup> Women's College Hospital, the Montreal Children's Hospital and the Alberta Children's Hospital. These teams include staff members from departments across the institution and focus on promoting energy efficiency, product longevity, use of less toxic products and attractiveness of the hospital environment. In some institutions, green teams are formed as natural extensions of existing health and safety committees. It is interesting that among this group of nurses, who were interested enough in environmental health to respond to the CNA survey, only 15.8% were aware of a green team at their places of work. Including the establishment of a green team in the hospital accreditation process might support the formation of such teams.

Finally, the location of a hospital or other health setting contributes to its ongoing sustainability. Although it is very encouraging that over a third of respondents indicated that nurses could get to evening or night shifts by public transit, ensuring that more staff have access to public transit options will assist in reducing the environmental footprint of the health sector.

## **CONCLUSIONS**

Nurses have an understanding of scientific methodologies, health conditions and human behaviours, all of which could assist in transforming evidence-based information into policy-relevant initiatives and communication tools for environmental health. Through their work with individuals, families and communities in a wide variety of settings, nurses could play a more active role in reducing or preventing the health consequences of environmental hazards. Training will be required to support nurses in this area. Such training could include a focus on environmental health in undergraduate and graduate nursing curricula, as well as educational opportunities for nurses in the workforce. Articles in nursing journals and the presentation of information on the Internet and

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<sup>5</sup> For a description of the green team at Cambridge Memorial Hospital, see <http://www.c2p2online.com/documents/CambridgeHospital.pdf>.

through workshops or conferences are all strategies that can be used to disseminate information on environmental health issues to nurses outside of the formal educational system. CNA is working with associate and provincial and territorial members to develop tools that can be used by schools of nursing, continuing education providers and individual nurses across Canada to increase awareness of environmental health issues.

## References

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## Appendix A

In 1990 the International Council of Nurses identified seven key strategies related to nursing's role in environmental health. (The ICN position statement has since been revised and is no longer available on the ICN website.)

1. Assess and detect hazards when they exist.
2. Provide information to individuals and aggregates on the health effects of environmental toxins and more global hazards.
3. Report serious environmental threats to appropriate agencies.
4. Develop and implement school based and work site wellness programs.
5. Aid in the formulation of public policy and legislation involving the environment.
6. Help prevent excessive exposure to immediate toxins and larger, global hazards.
7. Help facilitate behaviour change in people. (These behaviour changes relate to the environment such as using mass transit, recycling, and planting trees that will absorb carbon dioxide.)



## Appendix B

### Nurses' Survey on Environmental Health

Since its inception, the Canadian Nurses Association (CNA) has played an active role in environmental health issues and policies. CNA has identified the environment as one of the key themes of its centennial celebration in 2008 and throughout the upcoming year will be building awareness of the roles nurses play in environmental health issues. The purpose of this survey is to assist in identifying nurses' current involvement in environmental health. The survey will take approximately 10 minutes to complete, and all information will remain anonymous and confidential.

If you have any questions about what the CNA will be doing around environmental health during the centennial year, please do not hesitate to contact Nicki Sims-Jones, manager, Office of Environmental Health, at [njones@cna-aiic.ca](mailto:njones@cna-aiic.ca) or 1-800-361-8404.

1. Have you participated in educational sessions about the health implications of exposures to environmental hazards? y/n
2. Have you participated in educational sessions on reducing risks of exposure to environmental hazards? y/n
3. If yes to either of these questions, in which jurisdiction(s) was the session on environmental health offered? Please check as many responses as apply. British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia, Prince Edward Island, Newfoundland and Labrador, New Brunswick, Nunavut, Northwest Territories, Yukon.
4. What environmental hazards are you aware of that could affect the health of the population you work with? Please check as many responses as apply. Mould, organic solvents, waste anesthetic gases, contaminated water, environmental tobacco smoke, lead, indoor air quality, smog, mercury in fish, contaminated soil, other (please specify)
5. In the past five years, have you discussed with patients or clients potential environmental exposures such as mould at home, occupational exposures, quality of drinking water and/or air pollution? y/n/not applicable
6. What teaching tools have you used to provide information to your patients on environmental hazards? Please check as many responses as apply. Health Canada's Its Your Health series of fact sheets; other fact sheets from Health Canada; Canadian Food Inspection Agency fact sheets; fact sheets developed by a provincial or territorial government; fact sheets developed by a municipality; fact sheets developed by a health-care organization; not applicable; other (please specify)

7. Are you aware of legislation to protect Canadians from the effects of environmental hazards? y/n
8. What sources of information do you use for your own professional development? Please check as many responses as apply. courses/workshops/conferences/ articles in journals/ Internet/ work with mentor/ other (please specify)\_\_\_\_\_
9. What age group do you work with? adults, children, elderly people, clients of various ages?
10. In the past five years, have you been aware of patients admitted to your place of work as a result of exposures to environmental hazards such as smog or contaminated water, or because of injuries caused by products? y/n/not sure
11. Do you feel you have the skills you need to engage in environmental policy issues, such as cosmetic pesticide use? y/n
12. In your nursing assessment, do you ask your patients or clients whether they are exposed to environmental tobacco smoke? y/n
13. In which of these settings do you work? Please check as many responses as apply: hospital, community/public health, home care, community health clinic, long-term care setting, doctor's office, occupational health, rehabilitation centre, other (please specify)
14. Is there a Green Team in the place where you work? y/n/not sure
15. Does your employer have a purchasing policy that includes replacing disposable products with reusable products? y/n/not sure
16. Has your hospital or other workplace had renovations to become more energy efficient (e.g., new windows, new heating system)? y/n/not sure
17. Are nursing staff who work evening and night shifts able to take public transit to reach your work setting? y/n/not sure

*Questions about you*

1. In which province or territory do you work?
2. How old are you? 20-29; 30-39; 40-49; 50-59; 60 and over
3. What is your highest level of education completed? nursing diploma, bachelor degree in nursing, bachelor degree in another area, bachelor of science in nursing,

master of science in nursing, master in nursing, master in other area; doctorate in nursing, doctorate in other area, other (please specify)

4. Are you a: Registered Nurse? Registered Psychiatric Nurse? Licensed Practical Nurse? Advanced Practice Nurse?
5. Have you been involved with environmental issues in your personal life? y/n
6. In which jurisdiction did you obtain your nursing education? British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia, Prince Edward Island, Newfoundland and Labrador, New Brunswick, Nunavut, Northwest Territories, Yukon