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ASSOCIATION DES INFIRMIÈRES ET INFIRMIERS DU CANADA

Environmental Health Workshop Proceedings

Canadian Nurses Association

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Executive Summary

As part of its centennial celebrations in 2008, the Canadian Nurses Association (CNA) launched a project to support work on environmental health in the domains of nursing practice, education, research and policy. One component of that project was a full-day workshop on environmental health, which CNA, with funding from the federal government, hosted in Ottawa in February 2008. The objectives of the workshop were to:

- provide a forum for sharing information on best practices in nursing and environmental health from the perspectives of practice, education and research;
- begin to generate potential environmental health principles for Canadian nurses; and
- prepare a report to share information with others.

Workshop participants included members of CNA's Environmental Health Reference Group, which consists of 35 nurses representing every region of Canada. The reference group guides the association's environmental work and the development of all materials related to the environmental health project.

The workshop provided a unique and critically important opportunity to begin to address the impact of environmental factors on health by bringing together a key group of nurses who are leaders and champions in environmental health in Canada. Participants worked in small groups to identify the next steps needed to move environmental health forward in all domains of nursing. They grouped these next steps in three important areas: curriculum, advocacy and engagement of nurses and others.

Curriculum

The nurses participating in the workshop were unanimous in calling for environmental health to be integrated into nursing education. In fact, they indicated that this subject should be designated as an entry-to-practice competency. They identified the Canadian Association of Schools of Nursing as the best organization to specify environmental health as an essential component of the nursing curriculum, one that should be integrated in all Canadian programs. Student nursing associations were seen as key partners in this work; in fact, the Canadian Nursing Students' Association has made environmental health an issue in their next national forum. Participants stated that it was essential to use an interprofessional approach to education and research on environmental health; they also noted that it is critical to engage community resources, experts in the field and different levels of government to support educational strategies. They stressed the need for an environmental health practicum in nursing curricula, to allow application of theory to clinical practice. In terms of continuing education, the group recommended that environmental health become a CNA specialty with certification.

Advocacy

The participants stressed that moving forward with advocacy on environmental health will necessitate "buy-in" from nurses; one of the challenges, therefore, is to enable nurses to take ownership of environmental health issues. Participants saw a key role for nursing associations and organizations in integrating a focus on environmental health into their respective mandates. They recommended that nursing groups identify champions in environmental health in each province and territory, who would showcase their work and inspire other nurses. Nursing organizations and associations could develop mentoring programs, for example, in the development of Green Teams. They could also adopt environmentally focused themes as part of their work and could form partnerships with other groups – within nursing, in the community, in other professions and in industry – to publicize their work. The

development of programs to promote awareness among nurses regarding the importance of environmental health was seen as fundamental to the success of advocacy work. The group recommended that a social marketing campaign be created and that tools be developed that could be used by nurses in all jurisdictions.

Engagement of nurses and others

To engage nurses and others in moving forward on environmental health, the participants recognized the need for a broad-based approach. They stressed the importance of making information on environmental health accessible to nurses and others. They also noted that it would be critical to identify key champions to whom nurses could go for information and assistance. To accomplish these tasks, appropriate infrastructure must be put into place, and the group recommended that CNA take the lead on facilitating its development. They recommended that CNA maintain the Office of Environment to speak out about environmental health, to engage nurses in thinking about the issue, and to foster linkages in nursing and with the wider community, with the overall goal of ensuring forward movement on environmental health issues. The participants stressed that the environment is already in a critical state; however, since the damage cannot be repaired instantaneously, they noted that it would be important to develop long-term strategies that enable nurses and other key groups to maintain a focus on improving environmental health.

The participants had some concrete recommendations about what should happen next. They saw a need for a focused, standardized package of high-quality, easy-to-understand information that could be used to engage nurses. They recommended using *Canadian Nurse* and NurseONE as vehicles to convey this information to nurses. The participants identified a number of stakeholders and recommended ways in which these players could move environmental health concerns forward within their own work. They stressed the importance of engaging students. They also stressed that the provincial associations, as well as special interest and practice groups, need to filter and share information. A focus on environmental health could also be integrated into provincial and territorial workplans. Participants saw licensing bodies as key partners and felt that incorporating environmental health into standards of practice would be an essential step.

Plenary sessions

Along with the group's discussions, there were eight plenary sessions, in which speakers shared their expertise and experience in nursing and environmental health. These presentations focused on the themes of education, the range of environmental health issues that exist across Canada, advocacy and nursing practice.

The plenary speakers provided insights into both the diversity of the Canadian nursing experience and the diversity of environmental health impacts across the country. Rural communities are closely linked to the environment, and Priscilla Lockwood focused on the special challenges faced by nurses working in such communities and presented several case studies that gave workshop participants a window into the unique environmental health issues faced by isolated communities. Kristine Hutchison described the issues faced by remote northern communities and the nurses serving them. She stressed that populations living in close association with the land are the most vulnerable to future climate change. Health status in many arctic regions has changed significantly over the past few decades, and climate, weather and environment have played, and will continue to play, a significant role in the health of residents of those regions. Community health nurses working in local health centres represent the primary point of access to health care in most northern communities. In the North,¹ nurses are directly or indirectly involved in many environmental health issues.

¹ In Canada, the North is usually defined to include the territories, Nunavik and Nunatsiavut.

Andrea Chircop reminded participants that definitions of environmental health have broadened over the past few years, shifting from a focus on chemical toxicants to aspects of physical and social environments and now including urban and rural health, appropriate land use, public transportation systems and industrial development (Srinivasan, O’Fallon & Dearry, 2003). She stressed the importance of recognizing environmental health as a social justice issue. She observed that most Canadians live in urban areas, but the existence of an “intra-urban divide” means an unequal distribution of positive health status related to social and physical environments. In addition, not all urbanites have the same access to healthy environments.

In the area of education and curriculum development, the group learned from Barbara Sattler about educational strategies that have been used in the United States to develop nurses’ knowledge about environmental health. These strategies included a post-master’s certificate, basic and advanced courses in environmental health and applied toxicology, workshops, conferences, and online continuing education. Participants learned how the University of Maryland integrated environmental health into its undergraduate Community Health Program, which included integrating environmental health into home assessments and incorporating concepts related to environmental exposures into nursing assessments.

Canadian perspectives on environmental health in nursing education were also presented.

Fiona Hanley shared her experience of weaving environmental health into existing curricula, including the introduction of a course entitled “Social and Environmental Influences on Child Health.” This course enables nursing students to learn about social, economic and environmental influences on children’s health, to adapt their nursing care to the unique needs and vulnerabilities of children and to promote the health and well-being of children and families. The course focuses on protecting children from physical, biological, psychosocial, chemical, socioeconomic and environmental hazards. It stresses that children are not “little adults” and that they are particularly vulnerable because their physical and mental development is still in progress.

Joyce Woods-Surrendi began her presentation by posing the following question: Why should nurses be involved in and educated about environmental health? Her answers to this question included the fact that nurses are the professionals most trusted by the general public; they are frequently involved in health assessments; they have more direct contact with individuals, both in health and in illness, than many other health-care professionals; and they work with people throughout their lifespans. She reminded participants of the barriers to nursing education in environmental health: the already overburdened curriculum, the lack of “buy-in” by nursing educators and the shortage of educators. She also identified the “enablers,” the opportunities that exist to integrate environmental health into many components of the curriculum. She urged participants to take advantage of all such opportunities: for example, by meeting with curriculum committees and facilitating seminars for nursing educators and students.

In the area of advocacy, Hilda Swirsky shared a case study related to the banning of the cosmetic use of pesticides, an area where the Registered Nurses’ Association of Ontario (RNAO) has taken a strong advocacy stance. RNAO is a member of a coalition of 14 major health and environmental partners that has developed a position statement that has been communicated to the Ontario provincial government. The coalition is calling for health protective legislation to ban the use, sale and retail display of cosmetic pesticides for outdoor use. RNAO has worked hard to prepare its members for consultations and for presentations to municipal council meetings and has helped to create a strong advocacy movement in the province.

Gloria Fraser discussed issues relating to the integration of environmental health into primary nursing practice. She stressed that all nurses need to understand the relationship between individuals or populations and the environment in which they live. Potential environmental exposures and

environmentally related disease can be easily assessed through the nursing process. Nurses can be involved in primary prevention, including education, advocacy and identification of potential exposure problems; secondary prevention to prevent further exposures; and tertiary prevention to attempt to halt further disability when exposure-related illness is already present. Being knowledgeable about environmental factors is key to achieving the nursing goals of preventing illness and death and promoting health. The nursing assessment is central to the primary care nurse's role in environmental health.

Conclusions

The environmental health workshop provided an opportunity for participants to learn from each other and to consider critical issues related to the future of nursing and environmental health in Canada.

Introduction

As part of its centennial celebrations in 2008, the Canadian Nurses Association (CNA) launched a project to support work on environmental health in the domains of nursing practice, education, research and policy. One component of that project was a full-day workshop on environmental health, which CNA, with funding from the federal government, hosted in Ottawa in February 2008 (see Appendix A for the workshop agenda). The objectives of the workshop were to:

- provide a forum for sharing information on best practices in nursing and environmental health from the perspectives of practice, education and research;
- begin to generate potential environmental health principles for Canadian nurses; and
- prepare a report to share information with others.

Workshop participants (listed in Appendix B) included members of CNA's Environmental Health Reference Group, which consists of 35 nurses representing every region of Canada. This reference group guides the association's environmental work and the development of all materials related to the environmental health project. Participants' comments on the workshop are recorded in Appendix C.

Detailed Proceedings: Nursing and Environmental Health

The environmental health workshop provided a unique and critically important opportunity to bring together a group of nurses who are leaders and champions in environmental health in Canada. Participants worked in small groups to identify the next steps needed to further involve Canadian nurses in environmental health. They grouped these next steps in three important areas: curriculum, advocacy and engagement of nurses and others.

In their discussions, the groups answered four key questions:

1. What needs to be done next to move forward on curriculum, advocacy and the engagement of nurses and others in environmental health?
2. How can we, as individuals, move environmental health issues forward within our own work?
3. Who are the partners that must work together?
4. How can we bring these partners to the table?

Curriculum

The participants developed a vision for nursing education in environmental health, which included four components:

1. Every graduating nurse will have competency in environmental health.
2. There will be consistency in the environmental health components of nursing curricula across the country.
3. Current knowledge about environmental health will be consolidated.
4. There will be interprofessional collaboration in environmental health education.

They made the following recommendations:

- Environmental health should be designated as an entry-to-practice competency. Therefore, content will be required in both undergraduate curricula and licensing examinations.
- The Canadian Association of Schools of Nursing should be asked to identify environmental health as an essential component of the nursing curriculum. This topic should be integrated throughout nursing education programs, with emphasis on prevention of exposures.
- Student nursing associations should be engaged. It will be critical to discuss educational strategies and methods of teaching environmental health with students.
- An interprofessional approach to education and research is important. Community resources, experts in the field and ministries of education must be engaged to support the educational strategies that are developed.
- An environmental health practicum is needed to allow application of theory to clinical nursing practice. The practicum should include environmental assessment of clinical and other sites in health-care facilities.
- Develop community partnerships, including partnerships with industry.
- An environmental health specialty certification should be developed and offered by CNA. This will require creation of a curriculum and an examination.

Advocacy

Participants stressed that moving forward with advocacy will necessitate “buy-in” from nurses. They posed two main questions: How can nurses take ownership of environmental issues? How can they overcome the barriers?

The group identified a number of concrete next steps:

- It will be important to learn from and showcase models of success, including models in primary care, public health, rural health and education programs for faculty and students.
- Mentoring programs will be important; for example, Green Teams, in which nurses mentor other nurses (and others).
- Nurses should be encouraged to be eco-friendly at home as well as at work, which will in turn help them to become environmentally conscious advocates.
- Nurses should be educated and encouraged to include environmental health assessments in their nursing assessments of clients/patients and communities.
- Nurses should develop, or be part of, Green Teams in every health-care setting.

Nursing associations and their individual members can move forward on advocacy in environmental health in the context of their own work. Participants recommended that nursing associations and their members:

- integrate environmental health into association mandates;
- adopt annual environmentally focused themes for association activities;
- form stakeholder partnerships with other nursing groups and with industry;
- identify champions in environmental health in each province and showcase their experiences;
- develop a program of “green leadership” awards for nurses;
- work closely with the nursing education sector to develop accreditation programs and curricula, so that new graduates will have competencies in environmental health;
- sponsor education programs and workshops in the area of environmental health;
- sponsor programs to increase awareness (e.g., a social marketing campaign);
- develop toolkits and how-to materials (e.g., how to form a Green Team);
- create and circulate news bulletins to increase awareness about environmental health among association members and other stakeholders; and
- approach and work with health and safety committees and quality-of-care committees in health-care organizations to address environmental health.

The group also recommended that CNA set up a structure to keep the Environmental Health Reference Group in place to support nurses across the country in their advocacy efforts.

Engagement of nurses and others

To engage nurses and others in moving forward on environmental health, the participants recognized the need for a broad-based approach. They stressed the importance of making information on environmental health accessible to nurses and others. They also noted that it would be critical to identify key champions to whom nurses could go for information and assistance. To accomplish these tasks, appropriate infrastructure must be put into place, and the group recommended that CNA take the lead on facilitating its development. They recommended that CNA maintain the Office of Environment to speak out about environmental health, to engage nurses in thinking about the issue, and to foster linkages in nursing and with the wider community, with the overall goal of ensuring forward movement on environmental health issues. The participants stressed that the environment is already in a critical state; however, since the damage cannot be repaired instantaneously, they noted that it would be important to develop long-term strategies that enable nurses and other key groups to maintain a focus on improving environmental health.

The group had some concrete recommendations regarding what should happen next:

- Develop a focused, standardized package of high-quality, easy-to-understand information on environmental health for use in educating and engaging nurses. As one participant stated, “Make certain it is do-able, practical and accessible.”
- Identify clearly what must be known about this subject, including an understanding of the importance of environmental health. Stress that environmental assessment should be an integral part of nursing practice. Identify and communicate the links between environmental actions and consequences; in particular, many diseases can be traced to environmental problems. Provide practical approaches and solutions to help nurses act on their existing knowledge about environmental health.
- Bring ideas about environmental issues and consequences to all Canadian nurses; e.g., develop fact sheets for distribution with *Canadian Nurse*.
- Use NurseONE as a platform for disseminating information. The portal could include sections on the environment, air quality, climate change and other relevant topics.
- Identify champions at all levels who can bring the environmental health agenda to the forefront.
- Develop a social marketing campaign.
- Engage nurses as investigators in environmental health research.

The participants identified a number of stakeholders with whom they could work. They stressed the importance of engaging students and reported that students are bringing the issue of environmental health to the national forum of the Canadian Association of Nursing Students. They stressed that the provincial associations, as well as special interest and practice groups, need to filter and share information. A focus on environmental health could also be integrated into provincial and territorial workplans. Participants saw licensing bodies as key partners and felt that incorporating environmental health into standards of practice would be an essential step. The participants stressed the importance of integrating and incorporating environmental health into practice environments. To accomplish this objective, it will be essential to bring the evidence forward, especially the compelling financial arguments. Promoting professional

practice groups with an environmental focus was seen as an important way to integrate the concepts of environmental health into practice.

Finally, the participants stressed the importance of sharing successes – big and small – and showcasing environmental health opportunities. They saw the media as important partners in this work.

Detailed Proceedings: Plenary Speakers

Advocating for a Healthy Environment

Hilda Swirsky, Board Member at Large, Socio-Political Affairs,
Registered Nurses' Association of Ontario
Clinical Nurse, Mount Sinai Hospital

Key message: A healthy planet, home and working environment are essential.

Hilda Swirsky began her presentation with a reminder that the health of the environment is a priority in Canada and worldwide. Canada has a total of 59 multilateral environmental agreements referring to air, freshwater, oceans, biodiversity, ecosystems, hazardous wastes and toxic chemicals. In addition, Canada has signed a number of international conventions and treaties:

- Convention on Biological Diversity, which identifies species at risk
- Rotterdam and Stockholm treaties, which form the basis for regulations on pesticides and other toxins
- Montreal Protocol, which covers the phasing-out of chlorofluorocarbons and other ozone-depleting substances

The Canadian public is also concerned about the environment at an individual level. In particular, in 2006 and 2007, Decima polls revealed that protecting the environment is a top priority for Ontarians.

Hilda shared a case study related to the banning of the cosmetic use of pesticides, an area in which the Registered Nurses' Association of Ontario (RNAO) has taken a strong advocacy stance. The organization is part of a coalition of 14 major health and environmental partners that developed a position statement that was communicated to the provincial government at a media conference and through a personal meeting with the minister of health. The statement calls for implementation, in 2008, of health protective legislation to ban the use, sale and retail display of cosmetic pesticides for outdoor non-agricultural use. The coalition is also calling for effective education and publicity about the phasing-in and implementation of alternatives to pesticides and a mechanism to enforce the ban. In its election platform, the current government made a commitment to introduce provincial legislation to ban the cosmetic use of pesticides and has invited all stakeholders to participate in a consultative process. Thirty-three Ontario municipalities have already banned the use of cosmetic pesticides, but the provincial law would extend the ban to all municipalities. Susan Koswan, a spokesperson for the Pesticide Free coalition, has stated that if their recommendations are followed, "Ontario will set the world standard for eliminating pesticides from our landscaping practices."

RNAO and the coalition have based their advocacy work on evidence. Swirsky stated, "Conclusive, compelling research links pesticide exposure and their harmful toxins to cancer, birth defects, reproductive damage, neuro and developmental toxicity, immuno toxicity and endocrine disruption especially on vulnerable children's developing bodies and in-utero when critical physiological development occurs."

Province-wide consultations on the pesticide law were to take place in advance of spring presentation of the bill to the legislature. RNAO is preparing its members to engage in the ongoing process of encouraging municipalities to ban cosmetic pesticides, and is encouraging its members to take advantage of these opportunities.

RNAO has taken a number of other advocacy positions relating to the environment, including:

- recommending that the social assistance rate and minimum wage be raised, given that adverse health impacts are disproportionately borne by people with lower incomes (in this regard, RNAO sees environmental issues as social justice issues);
- advocating for a shift in government energy policy toward conservation;
- opposing the expansion of nuclear power generation and asking for the government's commitment to terminate all coal-burning power plants by 2009;
- recommending the phasing-in of a carbon tax and other environmental taxes and regulations and the use of the revenue generated to support social programs and services needed by at-risk populations;
- advocating for the creation of a pollution and cancer prevention act, which would require companies to develop pollution prevention plans;
- recommending increasing public awareness of toxins through a publicly accessible database and required labelling of products to list carcinogens, mutagens and reproductive toxins; and
- advocating, in collaboration with various partners (including the Canadian Cancer Society), for the development and implementation of a comprehensive strategy to reduce environmental, household and occupational carcinogens.

Rural Nursing and Environmental Health

Priscilla Lockwood, Canadian Association for Rural and Remote Nursing,
Staff Nurse, Tofino General Hospital

Key message: In rural communities health care is provided by several jurisdictions – geographic isolation makes things hard.

Priscilla Lockwood's presentation focused on the challenges faced by rural communities and rural nurses in Canada, especially those related to environmental health. She began by sharing the characteristics of rural nursing, as identified by the Canadian Association for Rural and Remote Nursing (www.carrn.com):

- Eighteen per cent of Canadian nurses work in rural and remote communities.
- These nurses have a generalist-specialist practice.
- They experience geographic and professional isolation.
- Rural communities are closely connected to the environment and the weather, and this connection influences nursing practice.
- Rural nurses must be self-reliant and independent.
- Rural nurses lack anonymity within their community.

Priscilla provided several examples of environmental health issues faced by rural communities such as the First Nations community of Ahousaht and the other small communities of Tofino and Hornby Island. The island on which Ahousaht is located is 18 km from the west coast of Canada. It is home to a small but growing community, with a population of 900 mostly young people. The island is accessible only by water and air. The island and its population are facing a variety of environmental health issues: need for landfill for garbage disposal, high prevalence of asthma caused by mould and need for water purification. A few years ago in Tofino, the population faced a "perfect storm" of adverse conditions affecting drinking water. A combination of lower-than-normal rainfall, a large transient tourist population in the summer and lack of adherence to water restrictions resulted in a water shortage, a most unusual circumstance in a rainforest. On Hornby Island, there are some encouraging developments; for example, a recycling program started by residents encourages maximum diversion from landfill through reuse, recycling and composting of solid waste. The program ensures that the collection of all materials is carried out in an environmentally responsible way. It also ensures safety for the workers in the recycling

centre and at public drop-off areas. There is continuous public education on waste diversion, which also helps to reduce pressure on the landfill site.

Northern Nursing and Environmental Health

Kristine Hutchison, Community Health Nurses Association of Canada
Manager Public Health, Department of Health and Social Services, Government of
Nunavut

It is more likely that populations living in close association with the land, in remote communities, and those that already face a variety of health-related challenges will be most vulnerable to future climate changes. Health status in many arctic regions has changed significantly over the past decades and the climate, weather and environment have played, and will continue to play, a significant role in the health of residents in the region.

Arctic Climate Impact Assessment (2005)

Kristine described the environment in which she works, the Canadian North, as a land with “lots of environment [and] very few people.” Nunavut, the Northwest Territories and the Yukon together have a population of only 104,739 but 3,646,309 km² of land.

Kristine stressed that community health nurses working in local health centres represent the primary point of access to health care for most northern communities. Environmental health issues are traditionally dealt with by environmental health officers (when related directly to human health) or by Environment Canada (when related to land use and animals).

Kristine cited research indicating that climate change is having an impact on the health of people in the North. She stressed that nurses need to incorporate these concerns into their work and should strive to lessen the impacts of climate change on people living in the North. She described climate-related health impacts that have been documented in Nunavik and Labrador. Issues of concern include an increase in the magnitude and frequency of temperature extremes, increased frequency and intensity of extreme weather events and uncharacteristic weather patterns, as well as greater exposure to ultraviolet radiation. The potential direct health impacts of these climatic changes are heat- or cold-related morbidity and mortality; accidents while hunting and travelling that result in injuries, death and psychosocial stress; and increased risk of skin cancer, burns, infectious diseases, eye damage, cataracts and immunosuppression. There are also many indirect impacts, such as increases in the ranges of infective agents, as well as changes in the local ecology of waterborne and foodborne infective agents.

In Nunavut there have been many projects, both ongoing and completed, involving environmental health: the Annana Project, a study of contaminants (described more fully below); the Inuit Health Survey, conducted in 2007-08; an indoor air quality study by Kovesi, Gilbert, Stocco, Fugler et al. (2007); a study entitled “Climate Change, Health and Vulnerability in Canadian Northern Aboriginal Communities” (Furgal and Seguin, 2006); and the Arctic Climate Impact Assessment (2005). Nurses have participated in all of these projects.

Kristine described the Annana Project in more detail. During the previous decade, baseline studies on maternal and fetal exposure to selected contaminants were conducted in various regions of the Canadian Arctic, including Nunavut. The findings suggested that the Inuit people are exposed to environmental contaminants through their traditional diet. In particular, the Qikiqtani (Baffin) region was identified by the Northern Contaminants Program as a priority for follow-up assessment. This region has historically had a higher level of contaminants than the four other regions of the Northwest Territories and Nunavut. More than 100 women are participating in the follow-up assessment, which involves a survey and direct measurement of blood and hair samples. Nurses are helping with the survey, which is collecting demographic information and

information about dietary and lifestyle factors (e.g., parity, breastfeeding history, exposure to cigarette smoke and occupational chemicals, food choices during pregnancy and consumption of country food). Data analysis and communication of results are taking place in fiscal year 2007-08.

The Inuit Health Survey, which was sponsored by the Government of Nunavut in collaboration with partners, includes a household survey examining food security, access to country food, household size, overcrowding, water sources and treatment, smoking in the home, injuries and disabilities. It also includes a survey of the health of children under 5 years of age. Both the adult and child surveys include measurement of critical biomarkers. Nurses are on the front lines of this and other studies, travelling on Canadian Coast Guard vessels to communicate with participants in their communities and to gather the data. Data collection for this survey will be completed in summer 2008.

Kristine concluded by noting that, in the North, nurses are directly or indirectly involved in many environmental health issues; nurses work with individuals and communities toward a healthier environment; and nurses use research in environmental health to guide their daily practice.

Environmental Health Inequities

Andrea Chircop, Assistant Professor, School of Nursing, Dalhousie University

Andrea Chircop's presentation stressed the importance of recognizing environmental health as a social justice issue. Andrea observed that definitions of environmental health have broadened over the past few years, shifting from a focus on chemical toxicants to aspects of physical and social environments and now including urban and rural health, appropriate land use, public transportation systems and industrial development (Srinivasan, O'Fallon & Deary, 2003).

Andrea noted that it is critical to consider environmental health from a population health perspective. She used the effects of urban living as an example. Eighty per cent of all Canadians live in urban areas. However, there is an "intra-urban divide," an unequal distribution of positive health status that is related to social and physical environments. In addition, not all urbanites have the same access to healthy environments. Andrea described the situation as one of urban advantage and disadvantage related to housing, transportation and infrastructure. She cited the growing evidence that environmental burdens are disproportionately carried by women and children, low-income communities, indigenous peoples and neighbourhoods of ethnic minorities in North America.

Andrea used an ecofeminist framework to conceptualize the complex interaction between environmental degradation and gender-related health inequities. Ecofeminism has the potential to uncover oppressive conceptual frameworks that are used to justify and maintain the domination of nature and subordination of certain groups in society. This approach guides the investigation of institutional structures of power and privilege and advocates for a "care-sensitive ethics" to guide public policy.

Preparing and Activating Health Professionals in Environmental Health

Barbara Sattler, Associate Professor, Environmental Health Education Center, School of Nursing, University of Maryland

Key message: Every graduating nurse will have competency in environmental health.

Barbara Sattler began by describing the background to the incorporation of environmental health into nursing education in the United States. In 1995, a report published by the National Academy of Science entitled *Nursing, Health and the Environment* called for the integration of environmental health into all aspects of nursing: education, practice, research and advocacy related to policy. The report's authors found that barriers to educating nurses about environmental health were faculty members who were not

prepared or lacked confidence (or both), a lack of educational resources (e.g., conferences, materials, articles in the nursing literature) and the absence of schools of nursing modelling such integration.

In response to these issues, the University of Maryland School of Nursing worked first on faculty development. With funding from a private foundation, the school created a three-day training program in nursing and environmental health and also supported travel and accommodation for faculty from other locations to attend the workshop. Through this program, the school trained 217 nursing faculty in a 17-state region. It has kept these nurse educators connected with resources and communication tools such as *enviRNews*, a newsletter, and the *enviRN* listserv. A year after the training, it reconvened the group and provided more educational content, including a “show and tell” session, as well as presenting awards for exceptional efforts, to celebrate the successes of these faculty members.

To further develop nurses’ knowledge in the area of environmental health, the Environmental Health Education Center at the University of Maryland has (with federal funding) engaged in a number of other activities:

- creation of an environmental health emphasis area for nurses;
- development of a post-master’s certificate and basic and advanced courses in environmental health and applied toxicology;
- presentation of workshops and conferences on environmental health for nurses; and
- online continuing education sessions with the American Nurses Association (ANA).

In addition, the university has integrated the following environmental health issues into its undergraduate Community Health Program: use of exposure data; drinking and recreational water quality; integrating environmental health into home assessments (e.g., checking for lead, carbon monoxide, pesticides, mould and contaminated soil); and looking at the positive aspects of environmental health, such as parks, sidewalks, trees and water. A number of successes have been achieved through this program, including the creation of champions who now work and practise in many nursing organizations. For example, alumni of the program are now on staff with the ANA, nursing subspecialty organizations and federal agencies, and others work in academia and as editors of nursing journals.

Barbara stressed the importance of engaging practising nurses and cited a number of ways in which this is being done.

- The ANA has:
 - created a Center of Occupation and Environmental Health;
 - developed a set of environmental health nursing principles; and
 - developed environmental health resolutions (e.g., a ban on nontherapeutic antibiotics).
- ANA has also developed a pollution prevention kit and instituted “RN No Harm Trainings” (train-the-trainer programs), thereby creating environmental health champions.
- Environmental health task forces within various state nurses’ associations have been awarded mini-grants for local conferences and programs.
- The Environmental Health Education Center at the University of Maryland is working with nurses in unions through the presentation of leadership development conferences and the development of model collective bargaining agreements.
- The Environmental Health Education Center is also engaging hospital nurses in Green Teams aimed at sustainability, reduction of polyvinylchlorides and phthalates, waste segregation, the three R’s (reduce, reuse, recycle), environmentally responsible purchasing, sustainable foods, and more.
- Finally, a dietary initiative called “Menu of Options: Steps to Healthier Food in Hospitals” has been developed, which focuses on antibiotic-free meat and poultry, milk free of bovine growth hormone, certified organic foods, certified fair trade coffees, locally sourced food and fast-food-free zones.

Barbara stressed that collaborative work with the coalition of health-care associations that forms Health Care Without Harm was also key to the national dissemination of information and the development of strategic partnerships. She closed by urging participants to mentor newcomers, celebrate victories and honour champions.

Integrating Environmental Health into Primary Care Nursing Practice

Gloria Fraser, Co-ordinator, Environmental Health Clinic, Women's College Hospital

Gloria Fraser began by reminding participants that Florence Nightingale recognized environmental hazards as the basic cause of disease and suffering. When the profession was just beginning, nurses were educated to provide environmental assessments and advocacy for their patients with regard to fresh air, light, warmth, cleanliness, quiet and appropriate diet to recover their health (Nightingale, 1860). Gloria stressed that environmental factors are major determinants of health for individuals and populations. The condition of the air, water, soil and climate all affect human health. Exposure to hazards in the environment, such as mercury and indoor air pollutants, can cause functional limitations and affect the length and quality of life.

Gloria also stressed the urgent need to educate the public about environmental health. In a recent set of focus groups conducted by CNA, participants were not well informed about environmental health; for example, three-quarters of the participants were unfamiliar with the term "environmental health." Educated guesses included such definitions as "It's things in the environment that make you sick." The most commonly identified issues in relation to environmental health were smog and pollution, household and workplace chemicals and second-hand smoke (EKOS Research Associates, 2007).

Gloria presented the definition of environmental health that she works with: Environmental health examines how human health is influenced by physical, chemical, biological, social and psychosocial factors in the environment. It includes an understanding of the interaction between people and the environment and the influence of this interaction on quality of life. A healthy environment is the foundation for healthy individuals and healthy communities (World Health Organization, 2007). She went on to stress that exposure to chemical, physical and biological agents and the effects of those exposures play a major role in the development of chronic diseases.

Gloria described the integration of environmental health into nursing practice, in particular into primary care nursing. All nurses need to understand the relationship between individuals or populations and the environment. Assessing potential environmental exposures and potentially environmentally related diseases can be easily accomplished using the nursing process. Nurses can be involved in:

- primary prevention, including education, advocacy and identification of potential exposure problems;
- secondary prevention to prevent further exposures; and
- tertiary prevention to halt further disability when exposure-related illness is already present (Sattler & Lipscomb, 2003).

Being knowledgeable about environmental factors is key to preventing illness and death.

The paradigm for nursing practice in environmental health includes:

- assessment (e.g., taking an environmental exposure history);
- surveillance (reporting data, including trends);
- collaboration (using a multidisciplinary approach);
- communication (e.g., effective risk communication); and
- providing recommendations about quality of life.

Gloria stressed that nursing assessment is central to the primary care nurse's role in environmental health. She suggested that taking an environmental history requires about 10 minutes of additional questioning. Questions related to personal activities, home, work and community are needed to determine the client's (potential) exposure(s) to environmental contaminants. Primary and secondary prevention of subsequent disease depends on an accurate nursing diagnosis. Gloria gave several examples of history-taking questions:

- Do you have exposure to any specific hazards, such as dust, fumes, chemicals or biologic agents?
- What kind of hobbies, work in the home and leisure activities are you involved in?
- Does your child reside in or regularly visit a house that was built before 1950 and is undergoing or has recently undergone (within the past 6 months) renovation? (Sattler & Lipscomb, 2003)

Primary care nurses with knowledge about environmental health can assess biologic, chemical and physical exposures and identify environmental illness. They are also able to take on roles in advocacy, ethics and risk communication in patient care and community interventions. They are skilled in gathering environmental health data; strengthening communication among organizations; and establishing a dialogue among nurses, individuals and populations.

Gloria stated that the involvement of primary care nurses in environmental health could result in a decrease in the rates or severity of diseases and health problems that have been linked to the environment, such as certain types of cancer, respiratory ailments, cardiovascular disease, impaired development, neurologic disease and reduced reproductive function.

Nurses can also contribute to improvements in the quality and comprehensiveness of environmental health data; enhance response to individual and population concerns; improve the capacity for environmental health knowledge among other nurses; and target actions to personal, work and community environmental health problems.

Environmental Health and Nursing Education

Fiona Hanley, Lecturer, McGill University

In her presentation, Fiona Hanley stressed the imperative of addressing environmental health in nursing education. There are several reasons for doing so: the physical environment is a major determinant of health, significant health effects of environmental exposures are already apparent, little thought has been given to environment as a key nursing concept, and health care itself leaves a significant environmental footprint.

This presentation addressed the following question: Why should nursing take on the challenge of teaching environmental health? Fiona provided a number of reasons:

- Nurses are often the first contact in the health-care system.
- Nurses represent the largest category of health-care providers in Canada.
- Nursing is a trusted profession.
- Nurses act in a number of roles, including advocacy and health promotion, and they have many different areas of practice.
- Nurses have many opportunities for action and influence, both personally and professionally.
- Members of the public are asking nurses for information and demanding action on environmental health.
- Students want to know about environmental health and are looking for opportunities to learn, often through courses in other faculties.

Fiona stressed that nurses have been given a mandate both nationally and internationally related to environmental health, but they do not always know how to respond or interpret the information. As such, there is a need for straightforward ideas and guidance, for more formalized educational opportunities for nurses in Canada and for new research possibilities for nursing and environmental health.

Fiona reviewed some of the emerging facts regarding health and the environment. According to a survey by the Canadian Medical Association (2007), the health of one in four Canadians is affected by the environment. This report also concluded that:

- doctors are seeing more patients with conditions directly related to environmental degradation;
- rates of emergency department admissions, hospital admissions and premature deaths are rising;
- rates of childhood asthma attacks and deaths are increasing;
- rates of cancers in young adults 20-29 years of age are increasing;
- safe exposure levels are being adjusted;
- evidence of the fetal origins of cancer is growing; and
- disorders of the male reproductive tract are increasing.

Fiona stressed that there are still many gaps in our understanding and stated that the challenge is to put in place the precautionary principle in a way that builds on evidence-based practice. She also reminded participants that environmental health is a social justice issue because health is a basic human right. She raised the notion of “ecojustice,” which refers to legal action to protect wildlife and natural resources as well as the rights of residents living in particular communities.

To date there has been little integration of environmental concepts into nursing education across Canada. The efforts that do exist have been largely the result of personal interest on the part of individual faculty members. There are no agreed-upon competencies related to environmental health and nursing, nor is there a certification process or formal recognition of expertise in this area.

Fiona provided examples of weaving environmental health into existing curricula based on her experiences at Dawson College and McGill University. She has introduced a course called “Social and Environmental Influences on Child Health.” The course objectives are to gain knowledge about social, economic and environmental influences on children’s health; enable nursing students to adapt the delivery of nursing care to the unique needs and vulnerabilities of children; and promote the health and well-being of children and their families.

The course is based on a definition of health whereby “health is ... seen as a resource for everyday life, not the objective of living” (World Health Organization, 1986). This definition emphasizes social and personal resources, as well as physical capacities. It also stresses that the fundamental conditions and resources for health are peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice and equity.

The pediatric environmental health component of the course focuses on protecting children from physical, biologic, psychosocial, chemical, socioeconomic and environmental hazards. It stresses that children are not simply small adults; rather, they have developmental, behavioural and physiological differences that contribute to an increased risk from exposures. In addition, they have limited control and intellectual capacity, and they cannot control their environment. They also have more years to live and suffer greater cumulative effects from hazards. External influences on childhood health include family structure and parenting style, school and child care, culture, maternal education, socio-economic status and housing, pollution, stress and noise. Finally, lifestyle activities that influence children’s health include environmental tobacco smoke, chemical exposures, injuries, sedentary lifestyle and nutrition.

A 3-hour lecture has also been developed for the primary health community course taken by nursing students in their final year. Some students are doing projects or assessments reflecting their interest in environmental health. The objectives of this class in community health are to:

- identify major environmental concerns;
 - make links with health promotion and environmental health;
 - learn concepts related to environmental health and community nursing practice;
 - introduce tools for environmental assessment; and
 - gain knowledge about social, economic and environmental influences on human health.
- Fiona closed by challenging participants to undertake what needs to be done next:
- There is a need to influence colleagues in both education and nursing practice.
 - There is a growing interest across faculties in the connection between environment and health.
 - There is an increasing student movement related to environmental health issues.

Educating Nurses about Children's Environmental Health

Joyce Woods-Surrendi, Nursing Educator, Mount Royal College

Joyce Woods-Surrendi began her presentation began by returning to the words of Aristotle: "To understand man one has to understand the environment in which he lives."

Joyce stated that environmental pollutants continue to be recognized as major sources of chronic illness. She noted that more than 100,000 chemicals have been introduced into our environment since the Second World War, but less than 2% have undergone any significant testing to determine their impact on health. Furthermore, environmental illness is not easily identified and is therefore often misdiagnosed and inappropriately treated. Environmental medicine specialists believe that every degenerative and debilitating disease, including cancer, has its beginnings with exposure to and accumulation of toxic chemicals commonly found in our surroundings.

Joyce reflected that there were many achievements in health care in the 20th century around the world. Although we can take pride in our progress and advances in technology, we have not stopped to ask the question, What will be the costs to our health? These advances have come rapidly, stressing the social, economic and cultural fibres of our society. They have also resulted in illnesses and diseases that disable their victims and mystify health-care professionals. Joyce concluded that "the problem is with the environment ... and we are now beginning to recognize these health problems as environmental illness".

Joyce described the development of her course on children and environmental health. The rationale for developing the course was based on the special vulnerability of children to environmental hazards. For a number of reasons, children are the most vulnerable group within the population. They are in a dynamic state of growth: their cells are multiplying and organ systems developing at a rapid rate. Rapidly dividing cells are especially vulnerable to carcinogens. At birth, the nervous, respiratory, reproductive and immune systems are not fully developed. They have a high proportion of fatty tissue, the tissue in which chemicals are stored. They eat more fruit and thus could experience greater exposure to pesticides. They engage in more hand-to-mouth activity and therefore are more exposed to contaminants and cleaning products. Children's metabolic systems are still developing, and their ability to detoxify and excrete toxins is therefore lower. The respiratory system of a child is very immature at birth, which means that children breathe faster, taking in much more air per kilogram of body weight than an adult. They spend much of their time of the floor, where the air has a higher concentration of toxic chemicals (which are heavier than air).

Joyce proposed answers to the question, Why should nurses be involved in and educated about environmental health?

- Nurses represent the profession most trusted by the public.
- Nurses are frequently involved in health assessments.
- Nurses are in more direct contact with individuals throughout an illness and thus have significant opportunities for teaching.
- Nurses work with people throughout their lives.

Joyce reminded participants of the barriers to nursing education in environmental health. The curriculum is already overburdened. There is a lack of “buy-in” on these issues among many nursing educators. In addition, there is a shortage of nursing educators. She also identified the existence of enablers. For example, there are opportunities to incorporate environmental health information throughout the curriculum for mothers and children, infants and newborns, children, and adolescents. Interest in environmental health has also been shown in other disciplines, including early childhood development, education, justice studies and environmental sciences.

Joyce urged participants to do the following:

- Examine the approach of their schools of nursing: What is covered now? What importance do they place on environmental health?
- Arrange meetings with curriculum committees to find out where environmental health could be added.
- Organize seminars across Canada for nurses, nursing educators, nursing students and administrators to secure buy-in.
- Engage the media wherever possible, to gain their interest and support. Nursing should be proactive rather than reactive.
- Take on an advocacy role with governments.

Appendix A: Workshop Agenda

Time	Topic	Speaker
8:00-8:30	Coffee	
8:30-9:10	Welcoming Remarks, Agenda Review, and Introductions	Facilitator
9:10-10:15	Advocating for a Healthy Environment	Hilda Swirsky Mount Sinai Hospital
	Rural Nursing and Environmental Health	Priscilla Lockwood Tofino General Hospital
	Northern Nursing and Environmental Health	Kristine Hutchison Public Health, Nunavut
	Environmental Health Inequities	Andrea Chircop Dalhousie University
10:15-10:45	Break	
10:45-11:30	Nurses and Environmental Health: Training Nurse Educators	Barbara Sattler University of Maryland
11:30-12:00	Nurses and Environmental Health: Primary Care Practice	Gloria Fraser Women's College Hospital
12:00-13:00	Lunch	At CNA House
13:00-14:00	Nurses and Environmental Health: Education	Fiona Hanley McGill University Joyce Woods-Surrendi Mount Royal College
14:00-14:15	CNA Activities	Nicki Sims-Jones Canadian Nurses Association
14:15-14:30	Break	
14:30-16:15	Next Steps in Environmental Health	Facilitated discussion
16:15-16:30	Wrap-up	Nicki Sims-Jones

Appendix B: Participants

Chelsee Albo
Western Regional Director
Canadian Nursing Students' Association

Paul Boudreau
Policy Analyst
Association of Registered Nurses of Prince
Edward Island
Charlottetown, Prince Edward Island

Nancy Brookes
Nurse Scholar
Royal Ottawa Health Care Group
Ottawa, Ontario

Andrea Chircop
Assistant Professor
School of Nursing, Dalhousie University
Halifax, Nova Scotia

Candace Frank
Saskatoon Health Region
Surgicentre Inc.
Saskatoon, Saskatchewan

Gloria Fraser
Co-ordinator
Environmental Health Clinic, Women's College
Hospital
Toronto, Ontario

Sandra Gear
Professional Practice Consultant – Nursing
Rural Avalon, Newfoundland

Fiona Hanley
Lecturer
McGill University
Montreal, Quebec

Jean Harrowing
Lecturer and Theory Courses Coordinator
School of Health Sciences
University of Lethbridge
Lethbridge, Alberta

Roberta Heale
Assistant Professor
School of Nursing, Laurentian University
Sudbury, Ontario

Cindy Hunt
Associate Dean Nursing, School of Health
Sciences
Humber College Institute of Technology and
Advanced Learning
Toronto, Ontario

Kristine Hutchison
Rep. Community Health Nurses Association of
Canada
Manager, Public Health
Department of Health and Social Services,
Government of Nunavut
Iqaluit, Nunavut

Sarah Liberman
Policy Analyst
Saskatchewan Registered Nurses' Association
Regina, Saskatchewan

Priscilla Lockwood
Rep. Canadian Association for Rural and
Remote Nursing
Staff Nurse
Tofino General Hospital
Tofino, British Columbia

Jo-Anne Macdonald
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Bonnie McLeod
Rep. Operating Room Nurses Association of
Canada
Clinical Nurse Educator – Perioperative
Fraser Health Authority
Maple Ridge, British Columbia

Eileen Owen-Williams
Associate Professor
Coordinator, Family Nurse Practitioner Program
University of Northern British Columbia
Prince George, British Columbia

Janet Purvis
National Practice Consultant
VON Canada
New Glasgow, Nova Scotia

Nicki Sims-Jones
Manager, Office of Environment
Canadian Nurses Association
Ottawa, Ontario

Hilda Swirsky
Rep. Registered Nurses' Association of Ontario
Clinical Nurse
Mount Sinai Hospital
Toronto, Ontario

Joyce Woods-Surrendi
Nursing Educator
Mount Royal College
Calgary, Alberta

Appendix C: Participants' Comments

What will you do in your jurisdiction/organization as a result of this workshop?

- I will report back and further co-create a publication for provincial newsletter.
- Pass along the information shared; i.e., websites.
- Develop a workshop, perhaps with a keynote.
- Link with CNA to ensure we are not overlapping in our activities.
- Create more awareness.
- Cite resources in consultation responses.
- Try to get greening initiatives started.
- Talk, talk, talk!!
- Lead by example.
- Try to work with provincial nursing association.
- Try to work with faculty to convince them about importance of the issue.
- Bring discussion about environmental health nursing to nursing faculty.
- Disseminate information from workshop.
- Integrate information into curriculum.
- Join Green Team at university.
- Present overview of workshop to faculty.
- Encourage nurses' involvement and support to heighten integration in curriculum.
- Solicit ideas, strategies and activities to move forward.
- Provide information back to provincial association or council.
- Write an information article for provincial publication.
- Provide information to other nursing groups and public groups.
- Explore research opportunities.
- Present to professional organization.
- Will share information with all members.
- Will strive to obtain funding to create a project turning workshop ideas into working realities for everyday clinical practice.
- This workshop clarifies my role in moving this issue forward. It has shown me that the champions are out there and they are approachable. Many people have similar issues and ideas for overcoming them.
- Work harder towards the cause.
- Communicate with higher-level executive.
- Communicate with site management and staff.
- Communicate with Regional Facilitator.
- Check out some websites.
- Update website.
- Encourage lobbying.
- Share information with my association.
- Encourage the university faculty to move in this direction.
- Increase awareness, share resources as available on environmental health.

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