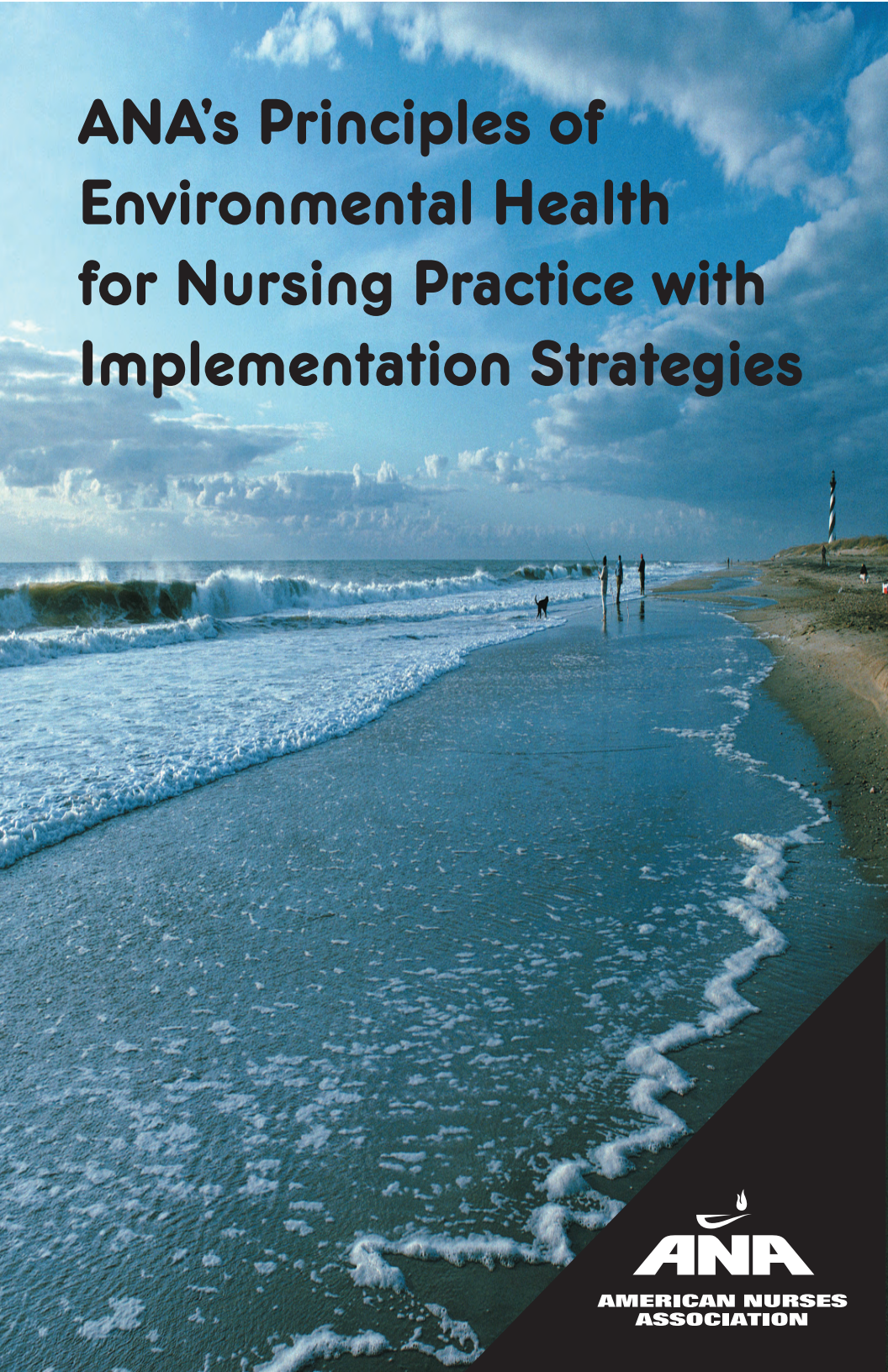


ANA's Principles of Environmental Health for Nursing Practice with Implementation Strategies



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PURPOSE:

GUIDING ENVIRONMENTALLY SAFE NURSING CARE

Nursing as a health care profession and environmental health as a public health discipline share many of the same roots. Since environmental health is “a good fit with the values of the nursing profession regarding disease prevention and social justice” (Mood, 1995, p. vii), registered nurses have a crucial role in assessing and addressing environmental health issues. This document articulates and expands on ten principles to guide registered nurses in providing nursing care in a manner that is environmentally safe and healthy. By doing so, this document challenges nurses to rediscover their profession’s traditional environmental health roots and to operate from these roots and principles in their roles as health care advocates and providers.

The principles put forth in this document are a call to action. They encourage nurses to gain a working understanding of the relationships between human health and environmental exposures and to integrate this knowledge into their practice. These principles are applicable in all settings where registered nurses practice and provide care and are intended to protect nurses themselves, patients and their families, other health care workers, and the community.

To help nurses utilize these principles in practice, this document also provides various implementation strategies as a framework for the profession to incorporate the principles into both generic and specialty standards of nursing practice, recognizing the role of nurses as environmental health activists.

INTRODUCTION: NURSING AND ENVIRONMENTAL HEALTH

Since the early years of the profession, nursing leaders such as Florence Nightingale and Lillian Wald have recognized the role of nurses in controlling the influence of environmental factors (air and water quality, food, sanitation, cleanliness, chemicals, pesticides, waste products) on health. Nurses have long appreciated that a healthy environment impacts upon the health of individuals, families, communities, and populations. This knowledge is an underpinning of nursing practice as expressed by Florence Nightingale in her First Rule of Nursing: “Keep the air within as pure as the air without” (Nightingale, 1859).

In 1992, the World Health Organization stated that “Environmental health comprises those aspects of human health, including quality of life, that are determined by physical, chemical, biological, and social and psychological problems in the environment. It also refers to the theory and practice of assessing, correcting, controlling, and preventing those factors in the environment that can potentially adversely affect the health of present and future generations” (WHO, 1992). Registered nurses regularly encounter diseases such as asthma, allergies, autoimmune conditions, emphysema, infertility, Parkinson’s disease, cancer, heart disease, and physiological and psychological stress that are caused and/or exacerbated by environmental contaminants.

The International Council of Nurses (ICN) stated that same year: “The concern of nurses is for people’s health—its promotion, its maintenance, its restoration. The healthy lives of people depend ultimately on the health of Planet Earth—its soil, its water, its oceans, its atmosphere, its biological diversity—all of the elements which constitute people’s natural environment. By extension, therefore, nurses need to be concerned with the promotion, maintenance and restoration of health of the natural environment, particularly with the pollution, degradation and destruction of that environment

being caused by human activities” (ICN, 1992). ICN believes that nurses and the nursing profession play a vital role in mitigating the negative impact of the products used in health care and medical waste on the environment (ICN, 1992, 2002, and 2004).

In October 2003, the ANA Board of Directors adopted as association policy the precautionary approach; that is, the Precautionary Principle as applied to health care: the prevention of hazards by using products and practices that do not harm the environment in the provision of care to patients. To this end, the Board resolved to:

- Broaden its work in occupational and environmental health and apply a precautionary approach when an activity raises threats of harm to human health or the environment
- Advocate for public policy that utilizes the precautionary approach that focuses on prevention of hazards to people and to the natural environment

The Board further determined to “advocate for a precautionary approach to environmental health that provides an opportunity for prevention instead of focusing most of our resources on curing disease resulting from preventable exposures” (ANA, 2003a; reproduced in Appendix C).

Subsequently, in 2004 the ANA House of Delegates passed a document, Action Report on Creation of Environmental Health Principles, which called for ANA to develop a document providing guidance for registered nurses on incorporating environmental health awareness into nursing practice, directing that this document would feature the Precautionary Principle.

The Precautionary Principle implies that there is an ethical imperative to prevent rather than merely treat disease, even in the face of scientific uncertainty. This principle can be understood as:

“When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically” (Wingspread, 1998). The Precautionary Principle supports taking action in the face of uncertainty; shifting burdens of proof to those who create risks; analyzing alternatives to potentially harmful products and practices; and utilizing participatory decision-making methods. It also advocates taking the life cycle of chemicals, products, or technologies into account and adding a proactive phase of requiring pre-market analysis for potential environmental harm.

There is a clear imperative from nursing associations that nurses are to be committed to promoting the health, welfare, and safety of all people. For instance, Provision 8 of ANA’s Code of Ethics for Nurses (ANA, 2001) discusses the nurse’s responsibility to be aware not only of specific health needs of individual patients, but also of broader health concerns such as world hunger, environmental pollution, lack of access to health care, violation of human rights, and inequitable distribution of nursing and health resources. This particular ethical provision directs nurses both to collaborate to meet societal health needs and not to treat their own health needs as less than anyone else’s needs.

In the United States, exposure to environmental contaminants (chemical, biological, radiological) often disproportionately affects poor people and people of color. Health disparities are commonly related to race, ethnicity, and socioeconomic status. For example, families with low incomes are more likely to live in substandard housing with the associated risks for lead-based paint exposure and carbon monoxide exposure from poorly maintained furnaces and ovens. Poor people and people of color are more likely to work in hazardous jobs (e.g., construction, farms, factories), and to live within one mile of an incinerator (Bullard, 1994; Bullard et al., 2007).

According to the National Healthcare Disparities Report (AHRQ, 2005), disparities are observed in almost all aspects of health care, including preventive care, treatment of acute conditions, and management of chronic illness. Also, disparities exist within many subpopulations including women, children, elderly, residents of rural areas, and individuals with disabilities and special needs (<http://www.qualitytools.ahrq.gov>). Nurses have an ethical obligation to address both health disparities and equity issues associated with environmental exposures.

Nurses constitute the single largest group of workers in the health care industry. Thus, it is essential that nurses responsibly recognize and address the environmental hazards (biological, chemical, radiological, and physical) that might affect themselves, their patients, and the community at large.

UNDERLYING SCIENTIFIC CONTEXT: GLOBAL CLIMATE CHANGE AND CHEMICAL BURDEN

Among the most critical environmental issues of concern for the nation and the world is global climate change. Over the last 15 years or so, the Intergovernmental Panel on Climate Change (IPCC), a team of scientists from 100 countries, has been reviewing the science on global warming and the potential for environmental and health threats from climate change. In their third assessment report (2001), the IPCC estimated that climate change would markedly increase temperatures, sea levels, and precipitation extremes by the year 2100. In their fourth report (IPCC, 2007), the IPCC has changed that time frame to 2030.

As global warming increases, we can expect to see worsening air pollution; heat-related illness; accidents and injuries from increased flooding, storm surge, and extreme weather; threatened quantity and quality of water supplies; and a rise in vector-transmitted diseases such as malaria, West Nile, and Dengue Fever. Several populations will prove to be particularly vulnerable to the effects of such climate change (Longstreth, 1999, pp.169–79):

- Children do not have fully developed immune or heat-regulatory systems and are more vulnerable to air pollution because of their physiology. Children breathe more air per pound than adults breathe and are more likely to spend more time outside while playing.
- The elderly are more vulnerable to heat-related illness and are at risk from extreme weather events that may lead to falls, injuries, and difficulty in evacuating their homes. Previously ill people, such as persons with pre-existing heart or lung conditions, are at risk of illness or death from heat and air pollution. Individuals with immunological disorders are at higher risk of infectious diseases spread by contaminated food or water.

- The urban poor are also vulnerable because urban environments trap heat and many individuals in this category may not have air conditioning or access to cooled public spaces. In addition, many may not be able to seek early or preventative health care.

According to The Louisville Charter for Safer Chemicals (2004), a policy statement for creating a safe and healthy environment, the current chemical burden on individuals is unprecedented in human history. There are approximately 100,000 chemicals now used in energy production, manufacturing, and consumer products throughout the industrialized world. Almost all are man-made with 15,000 of them produced annually in quantities greater than 10,000 pounds and 2,800 in quantities greater than 1 million pounds a year. Of the 2,800, only 7% have been tested for developmental effects and only 43% have been tested for human health effects (Goldman & Koduru, 2000).

Mounting scientific evidence indicates that the human body is becoming a reservoir for the toxic chemicals found in the air, water, food, household products, and even in products commonly used in the provision of health care. Toxicologists are creating a steady stream of science regarding the human health threats posed by one's exposure to chemicals, pollutants, and hazards such as mercury, polyvinyl chloride plastics (PVCs), dioxin, diethylhexyl phthalate (DEHP), latex, glutaraldehyde, formaldehyde, pesticides, antineoplastic drugs, waste anesthetic gases, ionizing radiation, and lasers.

Recent studies by the Centers for Disease Control and Prevention (CDC)—including an ongoing national study of select toxic chemicals—confirm the presence of hundreds of potentially harmful chemicals such as heavy metals, dioxins, and pesticides in the blood, urine, and breast milk of a broad sample of the U.S. population (CDC, 2005). Additional studies indicate that a similar mix of

chemicals circulates in umbilical cord blood, thus demonstrating the ability of these chemicals to easily cross the placenta and result in pre-polluted babies. An average of 200 industrial chemicals and pollutants were found in the cord blood, demonstrating how penetrable and vulnerable the placenta is and how a mother's current and sometimes even lifelong exposures to toxic chemicals are shared with the fetus. Of the 287 chemicals detected in cord blood, 180 are known to cause cancer in humans or animals, 217 are toxic to the brain and nervous system, and 208 cause birth defects or abnormal development in animal tests (EWG, 2005).

In addition, scientists are increasingly concerned not only about the implications of high-level exposures caused by industrial accidents or significant spills, but also about lower “environmentally relevant” exposures of the type commonly experienced by humans and communities (Giudace, Carlson, & Wade, 2006).

UNDERLYING ASSUMPTIONS: A FOUNDATION FOR THE PRINCIPLES

The following statements provide a foundation for the development of these principles of environmental health for nursing practice:

- Human health is linked to the quality of the environment.
- Air, water, soil, food, and products should be free of potentially harmful chemicals.
- A healthy environment is a universal need and fundamental human right.
- Environmental and social justice is a right of all populations and assumes that disparities in health are not acceptable.
- Current generations should meet their needs without compromising the ability of future generations to meet their own needs (WCED, 1987).
- Pollution prevention should occur at its source.
- The concern of nurses is the promotion, maintenance, and restoration of people's health.
- Nurses have an obligation to address health disparities and environmental injustice.
- The nurse collaborates with other professionals, policy makers, advocacy groups, and the public in promoting local, state, national, and international efforts to meet health needs.

DEVELOPMENT OF THE PRINCIPLES AND THIS DOCUMENT

The ANA Board of Directors directed the Congress on Nursing Practice and Economics (CNPE) to assume responsibility for the development of the principles and this document.

In December 2005, a CNPE work group was established to draft the document and to have it available for review and comment by the profession mid-year 2006. Conference calls and face-to-face meetings were utilized in the process. The work group was assisted in its deliberations by nurse experts from the Nurses Coordinating Council, a partnership of Health Care Without Harm, ANA, and the University of Maryland's School of Nursing Environmental Health Education Center as well as by a publication of the Nursing Section of the American Public Health Association called *Environmental Health Principles and Recommendations for Public Health Nursing* (2005).

POLICY STATEMENTS FROM ANA: SAFE ENVIRONMENTAL PRACTICES FOR ALL NURSES

ANA has a history of supporting sound environmental practices. This support has been demonstrated through Action Reports passed by its House of Delegates and includes these four statements:

REDUCTION OF HEALTH CARE PRODUCTION OF TOXIC POLLUTANTS (1997)

- Support AORN's definition of regulated medical waste
- Lobby for medical waste incinerator dioxin emissions to be less than 0.1 ng TEQ/dscm
- Promote alternatives to products made of PVCs
- Support mercury-free health care delivery and facilities
- Support non-incineration methods of waste disposal

INAPPROPRIATE USE OF ANTIMICROBIALS IN AGRICULTURE (2004)

- Support the phasing-out of the non-therapeutic use of medically important antibiotics and the use of fluoroquinolones in poultry
- Support full disclosure by meat and poultry producers regarding the use of pharmaceuticals

ENVIRONMENTAL HEALTH PRINCIPLES IN NURSING PRACTICE (2004)

- Develop environmental health principles for nursing practice based on the Precautionary Principle
- Support public policy that utilizes the Precautionary Principle

NURSING PRACTICE, CHEMICAL EXPOSURES AND RIGHT TO KNOW (2006)

- Support a fundamental reform of the nation's current chemical laws, regulations, rules, standards, and policies in order to protect nurses, other health care workers, patients and their families, communities, and the environment
 - Advocate for increased research to better understand the relationship between health and the environment
 - Support the integration of environmental health policy into nursing education, practice, research, advocacy, and public policy
 - Ensure that nurses have full access to information because of their right to know about the potentially harmful chemicals, pollutants, and hazards in their workplace

ANA'S PRINCIPLES OF ENVIRONMENTAL HEALTH FOR NURSING PRACTICE

1. Knowledge of environmental health concepts is essential to nursing practice.

2. The Precautionary Principle guides nurses in their practice to use products and practices that do not harm human health or the environment and to take preventive action in the face of uncertainty.

3. Nurses have a right to work in an environment that is safe and healthy.

4. Healthy environments are sustained through multi-disciplinary collaboration.

5. Choices of materials, products, technology, and practices in the environment that impact nursing practice are based on the best evidence available.

6. Approaches to promoting a healthy environment respect the diverse values, beliefs, cultures, and circumstances of patients and their families.

7. Nurses participate in assessing the quality of the environment in which they practice and live.

8. Nurses, other health care workers, patients, and communities have the right to know relevant and timely information about the potentially harmful products, chemicals, pollutants, and hazards to which they are exposed.

9. Nurses participate in research of best practices that promote a safe and healthy environment.

10. Nurses must be supported in advocating for and implementing environmental health principles in nursing practice.

APPLYING THE PRINCIPLES TO NURSING PRACTICE: IMPLEMENTATION STRATEGIES

PRINCIPLE 1

Knowledge of environmental health concepts is essential to nursing practice.

The Institute of Medicine (IOM) stated in its report *Nursing, Health, and the Environment* (1995) the importance of increasing the environmental awareness and knowledge of all nurses and that the nursing role ought to include a focus on increasing public understanding of environmental health risks. In order to do so, nurses need to attain basic competencies in general environmental health. The IOM cited competencies adapted from the International Council of Nursing as an opportunity to articulate those competencies. As listed in the report (IOM, 1995, p. 62), these competencies are:

- “Basic knowledge and concepts: All nurses should understand scientific principles and underpinnings of the relationship between individuals or populations, and the environment (including the work environment). This includes basic mechanisms and pathways of exposure to environmental hazards, basic prevention and control strategies, interdisciplinary practice, and research.
- Assessment and referral: All nurses should be able to complete an environmental health history, recognize potential environmental hazards and sentinel illnesses, and make appropriate referrals for conditions with probable environmental etiologies. An essential component of this is the ability to access and provide information to patients and communities, and to locate referral sources.
- Advocacy, ethics, and risk communication: All nurses should be able to demonstrate knowledge of the role of advocacy, ethics, and risk communication in patient care and community

intervention with respect to the potential adverse effects of the environment on health.

- Legislation and regulation: All nurses should understand the policy framework and major pieces of legislation and regulations related to environmental health.”

Nurse educators are responsible to themselves and their students to ensure that these competencies are incorporated into both basic and advanced nursing educational curricula. Nursing faculty need a sound understanding of environmental health issues in order to include appropriate course-specific content across the learning continuum.

Registered nurses can implement their education by becoming environmental health activists. Nurses in their variety of practice settings, homes, and communities can:

- Determine the probability of risk
- Follow through with a risk assessment including hazard identification, dose response evaluation, exposure assessment, and risk characterizations
- Design a risk management plan addressing policy development, engineering strategies, education on risk and the cost–benefit ratio of risk management, and the legal remedies for securing a “place at the table” for nurses as decision-makers

PRINCIPLE 2

The Precautionary Principle guides nurses in their practice to use products and practices that do not harm human health or the environment and to take preventive action in the face of uncertainty.

When it adopted the Precautionary Principle as a reasonable, rational, and responsible approach, ANA committed to use it to provide direction for its environmental safety advocacy efforts and policy formation. ANA lauded the principle as “a new approach to traditional ways of protecting workers, communities and ecosystems” (ANA, 2003a).

The Precautionary Principle challenges nurses to protect those who are most vulnerable, those who are least powerful, and those who are the earth’s future generations who have no power over today’s environmental decisions. The current mode of thinking asks, “How much harm is allowable?” The precautionary approach asks us to consider instead, “How can we meet our goals in the least harmful way? How can we protect public health and the environment?” (ANA, 2003a).

Nurses understand the need for prevention, early detection, monitoring, and reduction of stressors on people; the need to take preventative action, when possible; and the need to identify and reduce risks to patients and themselves even when full proof of cause and effect is not available.

Nurses can implement the Precautionary Principle in their practice through such activities as:

- Advocating for a review of the potential effects of new and old pharmaceuticals, products, technologies, and therapies on patients, health care workers, and the environment
- Urging health care facilities to become mercury-free and to phase out PVC and DEHP toxic materials, especially in maternity and neonatal units
- Getting involved on product and purchasing committees

- Supporting the use of safer alternatives to toxic cleaning products, disinfectants, and sterilants
- Urging the adoption of the Green Guide for Health Care (<http://www.gghc.org/>)
- Utilizing available assessment tools for identifying environmental hazards

PRINCIPLE 3

Nurses have a right to work in an environment that is safe and healthy.

A person's health is determined by multiple factors including lifestyle, human biology, the environment, and health care. The health care environment has the potential for exposing nurses and patients to contaminants. Some of the potential environmental hazards present in health care environments include heavy metals such as mercury and lead, hazardous drugs and chemicals including disinfectants, sterilants, and pesticides, and air and drinking water pollutants.

Health care facilities must develop strategies to defend against environmental threats. These strategies include involving nurses in decisions related to their practice, in the development of workplace environmental policies, and in the establishment, maintenance, and improvement of the health care environment, both present and planned. Unions that represent nurses for the purpose of collective bargaining should negotiate contract language that requires staff nurse input into the selection of chemicals, products, and technologies that will be used in the health care facility. Nurses have the right to know the contents of the materials being used in the delivery of nursing care. Nurses can access information on potential exposures and toxic products through utilization of "right-to-know" laws. The federal government has stated that every American is entitled to

information about chemicals to which they may be exposed in their daily living (U.S. EPA, <http://www.epa.gov/epahome/r2k.htm>).

Health care facilities have a responsibility to provide new technologies that decrease exposure to contaminants and to develop systems that track exposures and disease outcomes in order to improve the health care environment. Facilities should employ appropriately trained staff in environmental health, occupational safety, and infection control to identify, reduce, and prevent workplace exposures and to provide information for staff that is current and readily available.

According to the National Institute for Occupational Safety and Health (NIOSH), “Occupational health surveillance can be viewed as the tracking of occupational injuries, illnesses, hazards, and exposures. Occupational surveillance data are used to guide efforts to improve worker safety and health, and to monitor trends and progress over time” (NIOSH, 2001). Occupational health surveillance for health care workers is targeted to specific exposures (e.g., chemicals, hazardous drugs, bloodborne pathogens, airborne infections). A medical surveillance program should be in place to protect health care workers at risk of exposure to these hazards and others. Such a program is an integral part of a comprehensive program to minimize worker exposure and should include appropriate elements of a hierarchy of controls including engineering, administrative, and personal protective equipment.

According to ANA’s Code of Ethics for Nurses (2001), Provision 6, nurses should address concerns about the health care environment through appropriate channels. If reported environmental concerns and incidents are not successfully resolved, then it is essential to have whistleblower protections in place to ensure proper reporting of unsafe work conditions and patient safety issues.

PRINCIPLE 4

Healthy environments are sustained through multidisciplinary collaboration.

As discussed in *ANA's Nursing: Scope and Standards of Practice* (2003b), nurses and various other professionals exchange knowledge and ideas about how to deliver high-quality health care. This multidisciplinary collaboration involves shared functions and a common focus on the same overall mission, relying on each team member to contribute discipline-specific skills. Nurses also collaborate with other professions and the public in promoting local, state, national, and international efforts to meet health needs while maintaining a safe and healthy environment.

As frontline health care workers, nurses have a unique role as environmental health activists within health care facilities for creating positive change from within. Registered nurses should advocate for the judicious and appropriate use of pharmaceuticals and other products used in health care, including proper disposal and waste management.

Nurses can seek assistance in becoming environmental health activists through such initiatives as:

- The EnviRN website, (<http://envirn.umaryland.edu/>), of the University of Maryland is dedicated to supporting nurses in obtaining accurate, timely, and credible scientific information on environmental health nursing
- Health Care Without Harm's The Luminary Project, a website that provides the stories of nurses' efforts to improve one's health by improving the health of the environment (<http://www.TheLuminaryProject.org>)
- The ANA Center for Occupational and Environmental

Health website at (<http://nursingworld.org>), which includes a page on its RN-No-Harm initiative along with other environmental health topics and resources for nurses

Individual nurses can become active in the environmental movement through such multidisciplinary groups as Health Care Without Harm (HCWH), an international coalition of over 460 organizations in more than 54 countries, whose mission is to transform the health care industry so it is no longer a source of environmental harm by eliminating pollution in health care practices without compromising safe care. Another opportunity for activism is provided by Hospitals for a Healthy Environment (H2E), an organization whose vision is of a healthy health care system—a system that embraces safer building products, clean air, energy and water efficiency, safe working practices, and a commitment to public health demonstrated through waste volume and toxicity reduction.

PRINCIPLE 5

Choices of materials, products, technology, and practices in the environment that impact nursing practice are based on the best evidence available.

Nursing has endorsed evidence-based decision-making. This implies that the nurse will be conscientious, explicit, and judicious in using the current best evidence to make recommendations for the purchase and use of pharmaceuticals, materials, products, and technology that have been shown to minimize harm to the environment and risk to patients and personnel. Using current best evidence de-emphasizes intuition and unsystematic clinical experience as sufficient grounds for decision-making.

Recognizing that current best evidence may be incomplete and subject to change or revision, the nurse has a professional responsibility to seek out and weigh known data related to the environmental impact of products used in the care environment. Thus, the nurse

also has a responsibility to learn how to use and interpret findings from research that improves human health and maintains a safe and healthy environment.

Governmental groups such as the U.S. Environmental Protection Agency (EPA), the National Institute of Occupational Safety and Health (NIOSH), the Federal Drug Administration (FDA), and the Nuclear Regulatory Commission (NRC) are involved in maintaining the health and safety of individuals and the environment. Under NIOSH, the National Occupational Research Agenda initiative (NORA) has established the Emerging Technologies Team to establish mechanisms to ensure that worker health and safety is considered when new technologies are developed and implemented.

Environmental health groups such as Health Care Without Harm (HCWH) and Hospitals for a Healthy Environment (H2E) provide guides and safe alternatives lists on the use of mercury, PVCs, DEHP, BPRs, electronics, pesticides, and fragrances in health care. Guidelines are also provided for safer medical waste disposal, construction of healthy buildings, and green purchasing policies.

PRINCIPLE 6

Approaches to promoting a healthy environment respect the diverse values, beliefs, cultures, and circumstances of patients and their families.

In order to provide positive outcomes in care for patients and families, health care professionals working in complex environments are guided by policies and procedures, state and federal rules and regulations, evidence-based practice, and institutional missions and visions to assist in health care settings. To promote a healthy practice environment, nurses utilize the nursing process in caring for patients, often with disparate needs, from many diverse cultural backgrounds. However, minority groups are underrepresented in all of the health care professions. Immigration trends in the U.S. have created an ever-changing ethnic

population requiring culturally sensitive health care.

Unfortunately, understanding the impact of culture on the environment is not fully appreciated. Nurses frequently do not speak a patient's language or understand cultural needs and/or prohibitions. It has been stated that "cultural competence is paramount to understanding the dynamic interrelationships among environmental exposures, health beliefs, behavior, and health" (Amaya, 2003).

Improving the practice environment to address cross-cultural issues often will entail redesign of work by the health care team to respect the diversity of patients and their families. This may involve consulting and incorporating suggestions from a member of the particular minority community. A sensitive and planned incorporation of cultural factors into the nursing plan of care will facilitate positive health promotion, interventions, and outcomes.

PRINCIPLE 7

Nurses participate in assessing the quality of the environment in which they practice and live.

The nursing process is, regardless of setting, the essential component of all nursing practice. Assessment is the critical first step of the process and includes the gathering of subjective and objective data that comprises physical, psychological, sociocultural, and environmental information. Assessment is integral to the nursing perspective. The inclusion of the environment as a separate and equally important domain to be considered and documented expands this perspective and makes the assessment holistic, providing a comprehensive understanding of the condition of either the individual or community, depending on the focus of the nurse's practice.

For the individual, taking a thorough environmental and occupational history is vital to an environmental assessment. Important components of this history include detailed information about the

individual's present and previous work, home, community, hobbies, use of any cultural or home remedies, and information about where time is spent other than home and work. This information should be collected for the individual as well as their family members. The aim of this information gathering is to take into consideration all potential exposures. (See Appendix A for the CDC's IPREPARE approach for individuals and families.)

For nurses working in community health, the environment should be considered a crucial element of assessment as well. Several community-focused tools are available that can be adapted for and aid in this assessment. These tools include:

- Windshield survey
- Secondary data
- Survey data
- Key informant interviews
- Participant observations
- Community forum

Nurses need to be provided the tools and knowledge to make accurate environmental assessments through their educational programs, professional associations, and places of employment. They need current environmental health information, including:

- Methods for environmental history taking
- Basic principles of toxicology
- Information on environmental risks in the home, community, and workplace
- Disease-specific and toxic-specific information

PRINCIPLE 8

Nurses, other health care workers, patients, and communities have the right to know relevant and timely information about the potentially harmful products, chemicals, pollutants, and hazards to which they are exposed.

The pervasive manufacture and use of chemicals in the modern world can have significant adverse effects on human health. People come in contact with chemicals, potentially harmful products, pollutants, and hazards on a daily basis both in the workplace and in their community. The chronic leakage and emissions of toxic pollutants are suspected of causing cancer, some birth defects, reproductive disorders, learning disabilities, and other neurological problems.

In fact, according to the 1999 report of the Chemical Safety and Hazard Investigation Board, more than 250 people are killed annually due to toxic and hazardous chemical exposures. While it is true that “the dose makes the poison,” cumulative exposure to pollutants over the life span can be more deleterious to health than single-hit exposures. In the case of some pollutants, however, dose is less important a factor in health effects: minimal exposure to very small amounts of endocrine disruptors and nanoparticles, for instance, can significantly impact the human system.

Given these concerns it is important for communities to have access to information about the amount, type, and source of potential hazards that are released into their environment. Additionally, workers have the right to know about hazardous materials that they come in contact with during the average workday as well as access to and education about the proper protective equipment they should use to reduce risks of exposure.

To inform the public of chemical hazards in the community, the 99th Congress passed the Emergency Planning and Community

Right-to-Know Act (EPCRA) in 1986. EPCRA has three major functions:

- The emergency notification and planning provision outline in the law requires companies to disclose potential toxic hazards and develop a plan for protecting local communities in case of chemical emergencies.
- It provides the public with access to critical information about toxic chemical uses by businesses in the community.
- It requires large manufacturing facilities to report routine releases of some 320 listed toxic chemicals to the public and EPA annually. This information is made available to the public through a computer database known as the Toxic Release Inventory.

In order to ensure chemical safety, workers laboring in various industries, including health care, are informed of the identities and hazards of the chemicals in the workplace by the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (HCS). This standard protects workers' health by requiring that the hazards of all chemicals produced or imported be evaluated and that this information be provided to employers and employees. This transmittal of information is achieved by means of comprehensive hazard communication programs that include container labeling and other forms of warning, material safety data sheets, and employee training.

The intention of both EPCRA and HCS is to empower citizens to identify threats to their health and enable precaution and preventive action to occur. However, there are limitations to these laws, because right-to-know laws do not assure individuals the right to participate in the decision-making process regarding the chemicals used in their workplaces or communities. Nurses as community health advocates and a significant proportion of the health care

workforce are situated to take on the challenge of extending the right-to-know standard to encompass also the right to protect and the right to participate.

Nurses can lead the efforts in advocating for environmental issues, educating themselves and their patients in various health care settings and within the community with the goal of reducing or eliminating the harmful health effects and resulting health consequences from environmental insult. Nurses can:

- Incorporate the community risks in the nursing assessment
- Assist in developing strategies to reduce and/or eliminate environmental health risks
- Continue to advocate for health and wellness in communities

There are also significant steps that nurses can take to create safer work environments. These include collaborating with their facility's administration to develop joint nursing staff–management committees to assure that:

- All hazards in the workplace are identified
- MSDS fact sheets are available to staff
- Personal protective equipment is available, with staff receiving ongoing education on its use
- Hazardous chemicals are substituted with safer materials

PRINCIPLE 9

Nurses participate in research of best practices that promote a safe and healthy environment.

According to *ANA's Nursing: Scope and Standards of Practice* (2003b), the registered nurse integrates research findings into practice and

utilizes the best available evidence to guide practice decisions. Nurses in direct care can:

- Identify clinical problems related to environmental health issues
- Participate in research to address these issues
- Use the results of such research in the development of policies, procedures, and standards of practice to mitigate any negative impact upon patients of the biological, physical, and psychological effects of environmental hazards and exposures in health care settings

A 1995 Institute of Medicine report encouraged nurse researchers to “clarify the complex relationship between human disease and the physical and biological effects of environmental hazards with the goal of facilitating social and behavioral changes” (IOM, 1995). This continues to be applicable. Nurses can utilize acceptable epidemiological methods developed for the analysis of acute and chronic diseases when they conduct studies of the possible causes and impacts of environmental exposures and conditions. Evidence is available regarding the cause and effect of the environment on health, and nurses need to:

- Become astute in using such research to control environmental exposures that adversely affect patients
- Make the delivery of nursing and health care environmentally safe and healthy

PRINCIPLE 10

Nurses must be supported in advocating for and implementing environmental health principles in nursing practice.

When negative environmental events occur, nurses in their varied roles triage those exposed, treat those in need, and lead others in the community in the care of those exposed. Nurses can become leaders in their work settings by advocating for the implementation of environmental health principles into both nursing practice and the overall delivery of health care.

Such risk-taking leadership requires that nursing administrators, organizational management personnel, and owners of health care agencies and facilities recognize the importance of environmental health and create an organizational culture that supports the incorporation of environmental health principles into the delivery of health care. Employers should also support their health care professionals in working with local community leaders, agencies, organizations, manufacturers, unions, other employers, and legislators and regulators to change hazardous environmental conditions affecting health in the community.

NURSING'S COMMITMENT TO ENVIRONMENTAL HEALTH: COALITIONS AND PARTNERSHIPS

The American Nurses Association, through its partnerships with Health Care Without Harm (HCWH) and Hospitals for a Healthy Environment (H2E), has participated in the education of registered nurses in environmental health issues and becoming advocates for environmental health and safety. ANA has collaborated with the University of Maryland's School of Nursing Environmental Health Education Center, the U.S. Environmental Protection Agency (EPA), and the American Nurses Foundation (ANF) in publishing continuing education modules in environmental health (see Appendix B). The first two focus on children's environmental health issues, while the third looks specifically at environmental health in the health care setting, how the health care industry contributes to environmental pollution, and the actions nurses can take to address such threats. ANA has also provided education on environmental health issues in nursing practice at its national conventions and at annual American Public Health Association meetings.

ANA also collaborated with the American Nurses Foundation to offer an "RN No Harm Train-the-Trainer" program focused on developing nurses as environmental advocates and leaders. One key provision of the training was the inclusion of "action steps" to provide nurses with real strategies to tackle what can be viewed as an overwhelming issue.

ICN and ANA are leading partners in Health Care Without Harm, an international organization of over 460 members in 54 countries including health care systems, health professional associations, labor unions, environmental groups, faith-based organizations, and health advocacy coalitions. HCWH addresses such issues as: hospital emission of mercury and dioxin; potential health effects to patients of leaching of DEHP from PVC devices; safe alternatives to medical waste incineration; the potential adverse impact of building materials and furnishings used in health care facilities;

controlling pests without harmful pesticides; and the connection between what comes in the front door of the facility (purchasing) and what goes out the back door (environmental housekeeping).

Along with the American Hospital Association (AHA), the EPA, and Health Care Without Harm, ANA was one of the original sponsors of the now-independent Hospitals for a Healthy Environment (H2E). The primary goal of H2E is to educate health care professionals about pollution prevention opportunities in hospitals and health care systems. This is accomplished through such activities as the development of best practices; model plans for total waste management and minimizing the use of persistent, bioaccumulative, and toxic chemicals; and the provision of resource directories and case studies. Currently, H2E is focused on virtually eliminating mercury-containing waste from health care facilities' waste streams; reducing the overall volume of regulated and non-regulated waste; and identifying hazardous substances for pollution prevention and waste reduction opportunities, including hazardous chemicals and persistent, bioaccumulative, and toxic pollutants.

The American Nurses Association also has established the Center for Occupational and Environmental Health (COEH), which provides occupational and environmental health expertise on issues related to the nursing profession and the health care industry. The mission of the Center is to protect the health and well-being of nurses and their patients and communities through policy advocacy, programs, and training on the prevention and control of occupational and environmental hazards in relation to health care settings.

SUMMARY:

ENVIRONMENTAL HEALTH PRINCIPLES IN NURSING PRACTICE

This document presents ten environmental health principles for nurses to use in their practice so they can provide nursing care in an environmentally healthy and safe manner for all concerned. Rooted in nursing's heritage of disease prevention and social justice and set in the ongoing context of global climate change and each individual's ever-increasing chemical burden, these principles apply to nursing practice in all settings. Also presented are a variety of implementation strategies for each principle, ranging from the resources and opportunities presented by numerous organizations and agencies to suggested activities suitable for the individual nurse, health care team, facility, or community. Taken as a whole, these strategies provide a framework for integrating the ten principles into nursing practice. Thus, this document provides an environmental health foundation for nursing practice that promotes and protects the health and well-being of nurses, their patients and communities, and their world.

GLOSSARY

Assessment. A systematic, dynamic process by which the registered nurse, through interaction with the patient, family, groups, communities, populations, and health care practitioners, collects and analyzes data. Assessment may include the following dimensions: physical, psychological, socio-cultural, environmental, economic, lifestyle, and spiritual, as well as cognitive, developmental, and functional abilities.

Chemical exposure. Contact with a chemical compound present in air, water, food, soil, dust, or other environmental media that might result in a change in health status.

Code of ethics for nurses. A list of provisions that makes explicit the primary goals, values, and obligations of the nursing profession.

Endocrine disruptors. According to the EPA, these are any exogenous chemical substance or mixture that alters the structure or function(s) of the endocrine system and causes adverse effects—at the level of the organism, its progeny, and populations or subpopulations of organisms—based on scientific principles, data, weight of evidence, and the Precautionary Principle.

Environment. The atmosphere, milieu, or conditions in which an individual lives, works, or plays.

Environmental health. According to the World Health Organization (WHO), it is those aspects of human health, including quality of life, that are determined by physical, chemical, biological, social, and psychological problems in

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the environment. It also refers to the theory and practice of assessing, correcting, controlling, and preventing those factors in the environment that can potentially affect adversely the health of present and future generations.

Evidence-based practice. A process founded on the collection, interpretation, and integration of valid, important, and applicable patient-reported, clinician-observed, and research-derived evidence. The best available evidence, moderated by patient circumstances and preferences, is applied to improve the quality of clinical judgments.

Expected outcomes. End results that are measurable, desirable, and observable, and translate into observable behaviors.

Family. Family of origin or significant others as identified by patient.

Global climate change. Any significant change in climate measures (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer) due to natural factors and processes as well such external factors as anthropogenic activities that increase emissions of greenhouse gases.

Global warming. A change in the earth's climate resulting from the changes in industrial and agricultural processes that negatively impacts upon the gases in the atmosphere. An average increase in atmospheric temperature in the lower levels of the atmosphere that can both contribute to changes in global climate patterns and occur from a variety of natural and human-induced causes.

Health. An experience that is often expressed in terms of wellness and illness and that may occur in the presence or absence of disease or injury.

Health care practitioners. Individuals with special expertise who provide health care services or assistance to patients. These may include nurses, physicians, psychologists, social workers, nutritionists/dieticians, and various therapists.

Health disparity. The profound difference in health status and care experienced by racial, ethnic, and cultural minorities.

Illness. The subjective experience of discomfort.

Knowledge. Information that is synthesized so that relationships are identified and formalized.

Louisville Charter. A reform movement to change current chemical laws as necessary to protect children, workers, communities, and the environment. It calls for action to protect health and the earth's natural systems by phasing out the most dangerous chemicals, developing safer alternatives, protecting high-risk and vulnerable communities, and ensuring that those responsible for creating hazardous chemicals bear the full costs of correcting damages to our health and the environment.

Nanoparticles. Particles of less than 100 nm in diameter that exhibit new or enhanced size-dependent properties compared with larger particles of the same material.

Patient. Recipient of nursing practice. The term patient is used to provide consistency and brevity, bearing in mind that other terms, such as client, individual, resident, family, groups, communities, or populations, might be better choices in some instances. When the patient is a family or group, the focus is on the health state of the unit as a whole or the reciprocal effects of the individual's health state on the other

members of the unit. When the patient is a community or population, the focus is on personal and environmental health and the health risks of the community or population.

Toxic pollutants. A group of almost 200 products identified by the federal Clean Air Act that have been associated with a wide variety of adverse health effects.

Toxicant. Any chemical that can injure or kill humans, animals, or plants. Such a substance is produced by or is a by-product of human-made activities.

Toxicology. The study of how natural or man-made poisons cause undesirable effects.

Toxin. Any poisonous substance of microbial, vegetable, or synthetic chemical origin that can destroy an organism or alter growth or development.

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APPENDIX A.

CDC'S IPREARE: ENVIRONMENTAL ASSESSMENT FOR INDIVIDUALS AND FAMILIES

I — INVESTIGATE POTENTIAL EXPOSURES

P — PRESENT WORK

R — RESIDENCE

E — ENVIRONMENTAL CONCERNS

P — PAST WORK

A — ACTIVITIES

R — REFERRALS AND RESOURCES

E — EDUCATE

INVESTIGATE POTENTIAL EXPOSURES – Investigate potential exposures by asking: Have you ever felt sick after coming in contact with a chemical, pesticide, or other substance? Do you have any symptoms that improve when you are away from your home or your workplace?

PRESENT WORK – At your present work: Are you exposed to solvents, dust, fumes, radiation, loud noise, pesticides, or other chemicals? Do you know where to find Material Safety Data Sheets (MSDSs) on chemicals that you work with? Do you wear personal protective equipment? Are work clothes worn home? Do co-workers have similar health problems?

RESIDENCE – When was your residence built? What type of heating do you have? Have you recently remodeled your home? What chemicals are stored on your property? Where does your drinking water come from?

ENVIRONMENTAL CONCERNS – Are there environmental concerns in your neighborhood (i.e., air, water, soil)? What types of industries or farms are near your home? Do you live near a hazardous waste site or landfill?

PAST WORK – What are your past work experiences? What is the longest job held? Have you been in the military, worked on a farm, or done volunteer or seasonal work?

ACTIVITIES – What activities and hobbies do you and your family engage in? Do you burn, solder, or melt any products? Do you garden, fish, or hunt? Do you eat what you catch or grow? Do you use pesticides? Do you engage in any alternative healing or cultural practices?

REFERRALS AND RESOURCES – Use these key referrals and resources:

- Agency for Toxic Substances and Disease Registry*
<http://www.atsdr.cdc.gov>
- Association of Occupational and Environmental Clinics
<http://www.aoec.org>
- Material Safety Data Sheets (MSDS)
<http://www.hazard.com/msds>
- Occupational Safety & Health Administration
<http://www.osha.gov>
- U.S. Environmental Protection Agency
<http://www.epa.gov>
- Your local health department, environmental agency, and poison control center

EDUCATE – Are materials available to educate the patient? Are alternatives available to minimize the risk of exposure? Have prevention strategies been discussed? What is the plan for follow-up?

* For additional information on preventing harmful exposures and diseases related to toxic substances, contact ATSDR at, (800) CDC-INFO (232-4636), TTY 888-232-6348, or visit ATSDR's website (above).

APPENDIX B.

ENVIRONMENTAL HEALTH ORGANIZATION RESOURCES

American Nurses Association

<http://nursingworld.org>

8515 Georgia Avenue, Suite 400

Silver Spring, MD 20910-3492

Phone: 301-628-5000 — Fax: 301-628-5348

ANA Center for Occupational and Environmental Health

<http://nursingworld.org> (click on MainMenuCategories/OccupationalandEnvironmental.aspx)

ANA Continuing Education

<http://nursingworld.org/ce/cehome.cfm>

These study modules are among those available online:

- Environmental Health: Homes and Communities
- Environmental Health in the Health Care Setting.
- Safe Workplaces and Healthy Learning Places:
Environmentally Healthy Schools

American Association of Occupational Health Nurses

<http://www.aaohn.org/>

2920 Brandywine Rd., Suite 100

Atlanta, GA 30341

Phone: 770-455-7757 — Fax: 770-455-7271

American Public Health Association

<http://www.apha.org>

800 I Street, NW

Washington, DC 20001-3710

Phone: 202-777-APHA — Fax: 202-777-2533

Commonwealth's The Collaborative on Health and the Environment (CHE)

<http://www.healthandenvironment.org>

c/o Commonwealth

PO Box 316

Bolinas, CA 94924

Health Care Without Harm (HCWH)

<http://www.noharm.org>

HCWH Membership Services

1901 N. Moore Street, Suite 509

Arlington, VA 22209

Phone: 703-243-0056 — Fax: 866-438-5769

The Nurse Luminary Project

<http://www.theluminaryproject.org>

Nurses Workgroup (NWG)

Contact HCWH for meeting schedule and to be put on the NWG list service.

Hospitals for a Healthy Environment (H2E)

<http://www.H2E-online.org>

Hospitals for a Healthy Environment

PO Box 376

One Lyme Common

Lyme, NH 03768

Phone: 603-795-9966 — Fax: 866-379-8705

The Sustainable Hospitals Project

<http://www.sustainablehospitals.org>

(This project is part of the Lowell Center for Sustainable Production, which is associated with the Department of Work Environment www.uml.edu/Dept/WE/ and the Toxics Use Reduction Institute www.turi.org, both at the University of Massachusetts Lowell.)

University of Maryland School of Nursing, Environmental Health Education Center (EnviRN)

<http://envirn.umaryland.edu/>

University of Maryland School of Nursing

655 West Lombard Street, Room 665

Baltimore, Maryland 21201

Phone: 410-706-1849 — Fax: 410-706-0295

APPENDIX C.

ANA AND THE PRECAUTIONARY PRINCIPLE

As is evident from preceding discussions in this book, the Precautionary Principle is central to nursing's perspective on environmental health. The following statement (released by ANA on October 15, 2003) effectively laid the foundation for many of contributions made since by the nursing profession to environmental health.



AMERICAN NURSES ASSOCIATION ADOPTS PRECAUTIONARY APPROACH

EXECUTIVE SUMMARY: This report provides background information and direction for the American Nurses Association's (ANA) environmental safety policy formation and advocacy through a precautionary approach that focuses on prevention of hazards. The precautionary principle states that if it is within one's power, there is an ethical imperative to prevent rather than merely treat disease, even in the face of scientific uncertainty. The ANA Board of Directors adopted the precautionary approach in October 2003.

1. ANA will broaden its work in occupational and environmental health and apply a precautionary approach when an activity raises threats of harm to human health or the environment.

2. ANA will advocate for public policy that utilizes the precautionary approach that focuses on prevention of hazards to people and to the natural environment.

ISSUE STATEMENT:

While Florence Nightingale spoke about the importance of clean air, water and environment; modern day nursing has not paid as much attention to the relationship between health and the environment. ANA's involvement in environmental health has focused on the work environment (occupational health and safety) and the toxic byproducts of the health care environment. ANA's work on the environmental impacts of the health care industry has been implemented primarily through ANA's membership and involvement in the international coalition, Health Care Without

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Harm (HCWH), the campaign for environmentally responsible health care (www.noharm.org). As a result of the success of the Health Care Without Harm coalition, and visibility of ANA in HCWH and the Hospitals for a Healthy Environment (H2E) partnership (www.h2e-online.org), ANA is increasingly in demand to be a leader in environmental health issues.

ANA needs to develop a foundation in policy for these activities beyond the 1997 House of Delegates Report: *Reduction of Health Care Production of Toxic Pollution*, incorporating the recommendations from the 1995 Institute of Medicine Report: *Nursing, Health and the Environment*.

BACKGROUND ON ENVIRONMENTAL HEALTH & NURSING:

In 1860, Florence Nightingale provided the foundation for nursing attention to environmental exposures and health effects when she wrote about the need for fresh air and clean water in *Notes on Nursing* (Nightingale, 1860).

The International Council of Nursing (ICN) published a position statement in 1986, *The Nurse's Role in Safeguarding the Human Environment*. It states: "The preservation and improvement of the human environment has become increasingly important for man's survival and well-being. The vastness and urgency of the task place on every individual and every professional group the responsibility to participate in the efforts to safeguard man's environment, to conserve the world's resources, to study how their use affects man, and how adverse effects can be avoided."

This position statement was incorporated into the recommendations of the Institute of Medicine (IOM) Committee on Enhancing Environmental Health Content in Nursing Practice published in 1995 in its report: *Nursing, Health and the Environment* (IOM, 1995). The IOM report recommended environmental health competencies for nurses to include (1) Basic knowledge and concepts; 2) assessment and referral; 3) advocacy, ethics, and risk communication; and 4) legislation and regulation. That same year the National Institute of Nursing Research (NINR) convened a second workgroup to develop an environmental health research agenda for the profession. The group emphasized that because nurses

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are employed in so many settings, the profession is uniquely suited to conduct applied research addressing the impact of environmental hazards on vulnerable populations and communities.

PRECAUTIONARY PRINCIPLE:

The precautionary principle is explained thus: “when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically” (<http://gdrc.org/u-gov/precaution-3.html>). The principle includes taking action in the face of uncertainty; shifting burdens of proof to those who create risks; analysis of alternatives to potentially harmful activities; and participatory decision-making methods. The precautionary principle takes the life cycle of products or chemicals into account and adds the proactive step of pre-market analysis of environmental harm.

CONCLUSION STATEMENT:

As nurses, who are educated in disease prevention, we can appreciate and should advocate for a precautionary approach when it may prevent injuries and illness. Nurses, as trusted and credible sources of information and education regarding environmental health issues, have the potential to lead patients and communities. ANA can assist nurses in educating and guiding policy makers, including elected officials, to a new way to see the relationship between life’s choices (both individual and societal) and their impact on health.

ANA will advocate for a precautionary approach to environmental health that provides an opportunity for prevention instead of focusing most of our resources on curing disease resulting from preventable exposures.

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ANA is the only full-service professional organization representing the nation's 2.9 million Registered Nurses through its 54 constituent member associations. ANA advances the nursing profession by fostering high standards of nursing practice, promoting the economic and general welfare of nurses in the workplace, projecting a positive and realistic view of nursing, and lobbying the Congress and regulatory agencies on health care issues affecting nurses and the public.

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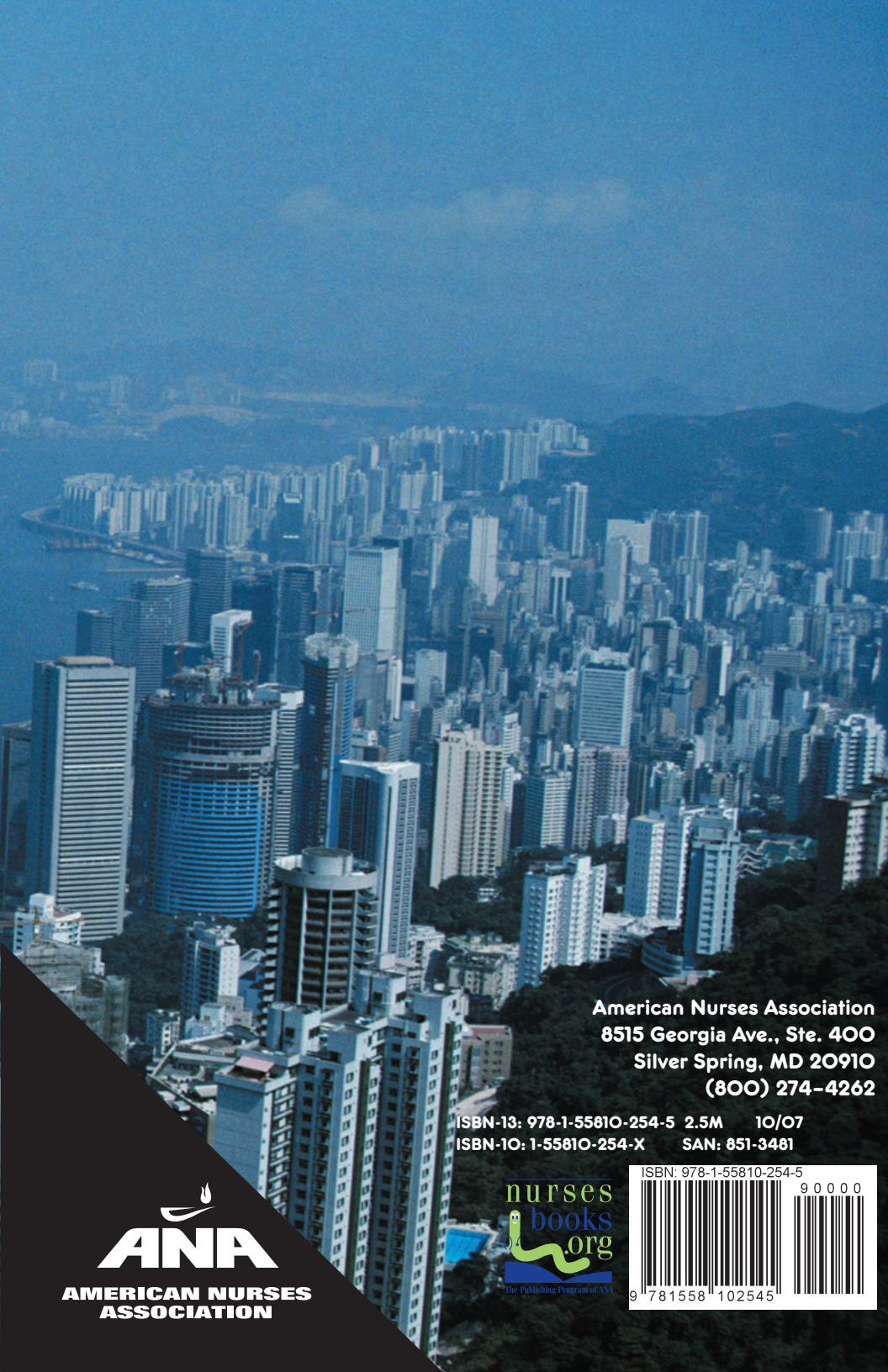
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