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An Environmental Clinical Experience in a RN-BS Program

Registered Nurse-Bachelor of Science (RN-BS) post licensure programs have the luxury of offering the essential elements of baccalaureate nursing education while integrating professional nursing concepts based on a changing health care environment. While many post RN-BS licensure programs have no clinical component, the Commission on Collegiate Nursing Education (CCNE) now requires clinical training in online courses. Yet, clinical placements are not only difficult to obtain they are also often redundant for nurses who have been in practice for many years. The impact of the environment on health is increasingly recognized, yet few nursing curriculums offer more than a cursory coverage of this content. It is imperative that nurses learn more about environmental health in order to meet the changing needs of health care today, as well as to work towards preventing health issues that develop within an individual's environment. This article describes an innovative clinical placement in an RN-BS program that provides students with a strong foundation in environmental health. This particular RN-BS program that is discussed includes both traditional and online classes and has always required a clinical component for each nursing class.

SEARCH OF THE LITERATURE

Nurses remain an under-recognized and under-utilized source of expertise in environmental health efforts (Butterfield, 2002). Nurses need to decipher whether certain environmental influences are actually affecting the health of an individual or a population (Savell & Sattler, 2012). Environmental issues regarding chronic diseases are complex and may include identifying and reducing the levels of exposure to various agents in different microenvironments, which include indoor and outdoor places people spend time to live, eat, sleep, work, learn, play,

and travel (Shendell, Alexander & Huang, 2010). Nurses who are knowledgeable about how environment and health are intertwined can intervene when the environment is causing harm to the health of individuals, families, or populations (Savell & Sattler, 2012). According to the International Council of Nurses (ICN), nurses should contribute to public policy pertaining to the determinants of health (ICN, 2004; 2007). Patient education on the impact of environmental pollution and the development of coalitions with other professions to lobby for safe waste disposal should be included in the nurse's environmental role (ICN, 2004). However, while nurses are employed in occupational health, the environmental role of the nurse remains undefined (Carnegie & Kiger, 2010). Research using focus groups with community nurses identified several issues with nurses performing environmental roles including: a lack of acknowledgement and legitimization of an environmental role for visiting nurses, undefined and extensive geographical boundaries to be covered while fulfilling clinical duties, inadequate training and resources to follow through on any findings, and insufficient funding by stakeholders for nurses to advocate for communities (Carnegie & Kiger, 2010). Environmental education is not routinely included in nurses' education curriculum which leads to community nurses feeling unprepared (Mujuru & Niezen, 2004).

Since environmental health is such a vast subject area, nurses need to know how to assess and address many environmental exposures found in homes, workplaces, and schools (Savell & Sattler, 2012). Many health risks exist within our own individual or family environments and can be prevented through health promotion and prevention education. A deficiency in environmental health knowledge among nurses can result in inadequate attention to health complaints reported by clients with suspected exposures to environmental hazards (Mujuru & Niezen, 2004). The sheer numbers and presence of nurses in the community provide nurses with

opportunities to assume leadership roles in local and national efforts to reduce environmental health threats (Butterfield, 2002). Nurses can create awareness of environmental hazards that threaten communities and advocate for policies or legislation to reduce the hazards (Savell & Sattler, 2012). Conditions that contribute to health disparities, such as poverty, violence, limited access to healthy foods or healthcare, are compounded by environmental exposures associated with substandard housing, working in the most dangerous jobs, and living in communities with environmental contaminants in the air, soil, and soot (Brulle & Pellow, 2006). However, the success of nurses in environmental health intervention can only be possible if they are aware of the need to incorporate environmental health in their physical assessment and examination of clients (Mujuru & Niezen, 2004). To accomplish this, nurses need to define what areas of leadership can be assumed in order to reduce the burden of environmentally associated disease in the next generation of citizens (Butterfield, 2002).

The nursing curricula is already to capacity, so infusing environmental health into the curriculum proves to be difficult. In addition to the curricula design issue, however, the comfort level of nursing faculty with environmental health content and subsequent subjects is a formidable challenge unless they have access to formal or continuing education (Backus, Beauchamp Hewitt, & Chalupka, 2006). Public health nurses and nursing faculty generally possess mid-level to advanced skills in communication, community engagement, and advocacy (Keller et al., 2004). These skills can be utilized and incorporated into environmental health practice and educational arenas (Backus, Beauchamp Hewitt & Chalupka, 2006).

Environmental public health sciences (EHS) have typically been focused on training medical professionals. However, all health care providers should receive education and training in EHS throughout their careers (Shendell, Alexander, & Huang, 2010). Professionals who should be

included in improved EHS literacy both in practice and in training should be those who work in education and public health, which includes school staff, community health workers, environmental health scientists, health educators, and health promotion and behavioral scientists (Shendell, Alexander, & Huang, 2010). The sheer number of nurses, our trusted role in society, and our evidence-based philosophy make us ideal conveyors of information about the health risks associated with environmental exposures (Savell & Sattler, 2012).

ENVIRONMENTAL TOPICS OF CONCERN

RN-BS students can be exposed to various environmental issues that require attention and research today. Projects can be assigned to students which can include researching the need for the reduction of the use of plastic bags, examining how receipts are manufactured to reduce exposure to Bisphenol A in thermal printer receipts, and working with recent immigrants to be aware of small changes in daily practices that can lead to healthier lifestyles.

An educational walking program was begun by a Pediatric Fellow at a major New York City hospital. He was inspired by a similar program in Ohio that was initiated by a cardiologist who wanted his patients to lead a healthier lifestyle. The program conducted a needs assessment survey and designed a walk around each of the following topics that were of significant concern to the immigrant population being serving: asthma/allergies, obesity/nutrition, dental health and behavior/bullying. Each walk starts with a pre-test survey that is formulated and administered by the program director, then a brief presentation on the health topic of concern such as asthma or obesity, and then the group walks together to locations pertinent to the topic such as farmers markets, parks and green space, and agencies that provide services related to the identified topic such as the local clinic that treats childhood asthma or the green markets where coupons are

provided to make healthy food choices to combat obesity. The walk is then followed by a post-test survey which is again administered by the program director in order to make improvements for future walks as well as to choose topics to design future walks around. The Pediatric Fellow strives to combine health information with social networking among families, informal conversation with health care providers, exercise and access to health resources. The walks are offered once a month year round, and the organizers continuously recruit trainees and allied health professionals to join the current group but also to potentially develop and lead walks in the future or even duplicate the program in other neighborhoods. Within this clinical site, RN-BS students can have a significant impact as health care professionals by working closely with the organizers to prepare the information provided to the groups, design the pre- and post- test surveys, and assist in providing any follow up necessitated such as written documents to reinforce educational information provided on the walks or additional referrals to healthcare providers such as nutritionists, physicians, or clinics.

Plastics are now one of the most common and persistent pollutants in ocean waters and beaches worldwide, averaging 60-80% of all marine litter (Moore, 2008). Fish, birds, and mammals mistake floating plastics as food sources, and end up ingesting plastic which leads to toxicity concerns, absorption of biopollutants and results in the threatening of marine biodiversity. Entanglement in plastic debris is another cause of death through drowning for ocean life. Small fragments of plastics from cleaners, cosmetic preparations and other cleaning media are now being studied for the particles that are given off into the environment through their use (Derraik, 2002). One way to reduce the amount of plastic debris in the environment is through the use of paper or re-useable bags in grocery stores.

Bisphenol A (BPA), which has been shown to be an endocrine-disruptor in humans, is a chemical produced in large quantities and can be found in everyday items from water bottles to baby bottles and canned foods. BPA is currently being studied by the National Institute of Environmental Health Sciences (NIEHS) due to the detrimental effects it has on a widespread number of individuals. The Food and Drug Administration has been investigating sources of BPA and the potential for these sources to expose individuals to damaging effects on the brain, behavior, and prostate glands of fetuses, infants and children (Raloff, 2010). One major area which is currently being studied intently is the use of BPA on thermal printer paper found in everyday receipts such as those from cash registers and bank automated teller machines (Biedermann, et al, 2010). Higher levels of BPA have been found in individuals who handle this printer paper frequently throughout the day depending upon the skin conditions. The levels appear to be even higher in those whose fingertips were wet, had lotion on them, or any type of material which moistened the fingertips prior to touching the thermal printer paper. Therefore, those individuals who have an occupational exposure to thermal printer paper may be exposed to BPA more frequently and thereby may have greater health risks associated with such exposure (Geens, et al, 2012). Fortunately, there is a thermal free printer paper available for use to avoid unnecessary exposure.

CURRICULUM DESIGN

Since its conception, this RN-BS curriculum has included a two-course, five-credit sequence of Community and Urban Health with a 60-hour clinical practicum. This unique curriculum design offers students the opportunity to pursue environmental health as one of several clinical options. The Urban Health class is paired with an environmental clinical that

meets in the classroom with the addition of three focused learning assignments. First, students participate with their instructor in a meeting of the group of nationally recognized environmental children's health experts in New York City. Second, the students and instructor take a field trip to Via Verde, an award-winning architectural project in the South Bronx within New York City's poorest congressional district helps students understand the principles of designing healthy and sustainable communities that will improve the health of urban populations. And third, the students and instructor visit a not-for-profit environmental organization that offers hands-on political advocacy experience for students. The clinical instructors accompany the students on each field trip and facilitate the groups' interactions within each organization. The course's textbook *Community Health Nursing: Promoting the Public's Health* (Allender, Rector, & Warner, 2010) has an environmental health chapter that provides a strong foundation and is bolstered by the use of a number of web-based resources. These resources include those from several nationally prominent schools of public health, the Agency for Toxic Substances and Disease Registry, the Alliance of Nurses for Healthy Environments (ANHE), the Luminary Project, and the Center for Disease Control. Other critical content the students are exposed to in the class includes climate change, sustainable energy, environmental justice, greening hospitals, proper disposal of pharmaceutical waste, and the joint initiative of the American Nurses Association, Physicians for Social Responsibility, and Health Care Without Harm Hazardous Chemicals in Health Care. Students read two nursing articles about shale gas drilling and discuss the complex issues involved in the ongoing debate between proponents of fossil fuels and proponents of sustainable energy. Students collaborate on a group research project of their own choosing and present their research to the entire class. This research project allows students to perform an in-depth analysis of an environmental topic, e.g., environmental causes of cancer,

Bisphenol A, lead, cosmetic safety, obesogens, and arsenic. The instructors assist the students in brainstorming to identify the topic of interest for their group projects and presentations, while also guiding the students with critical discussions, internet research, writing, critique, and finalization of a proposed plan. An indirect goal of the project is learning to work as a group with the instructor overseeing individual and group performance. Student reactions to the course and its relevance to their own lives was very positive. Most were surprised to learn that very few chemicals are tested for safety prior to release on the market and that children and pregnant women are increasingly vulnerable to these threats. The course directs those interested in applying political advocacy skills on behalf of the environment to a host of environmental advocacy organizations, including the National Resources Defense Fund and the Environmental Working Group.

SUMMARY

In conclusion, an environmental clinical experience in an RN-BS program in NYC was received well by the students. Their exposure to a green living environment in an urban setting was enlightening and made for an enjoyable learning experience. Incorporating information shared by the major healthcare organizations in New York City with information the students were able to research, gave them a comprehensive background on environmental issues they chose to focus on throughout the course. The various websites and organizations available in the field broadened the students' knowledge base and added to an awareness of current issues in the health field caused by environmental concerns. This knowledge base and competence is necessary in the expanding field of nursing in order to provide the utmost comprehensive care to

both individuals and communities alike, as well as to work towards preventing these environmental concerns from impairing the health of future communities.

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