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Decreasing Environmental Health Risks in the Philippines: Implementation of a Culturally Appropriate Screening Tool

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Abstract

Objectives: The purpose of this DNP project was to increase the knowledge of environmental health risk factors in the Philippines among nurses and doctors located within that healthcare system. The overall goal was to educate providers on local environmental health risks, provide training for the use of a screening tool (Tagalog Environmental Health and Safety Assessment Tool [TEHSAT]), and provide resources aimed at increasing screening of at risk populations and provide opportunities for education and health promotion.

Methods: This project included a two-part educational training session. The first part included a preliminary presentation on environmental health and the use of the screening toolkit. The second part was developing practice proficiency with the TEHSAT. Following the educational intervention, the DNP author provided on-site resources to BSN and MAN level nursing students required to implement the toolkit into clinical practice.

Results: The results of the educational project revealed positive findings, in which 79% of the nursing students were able to increase their knowledge pertaining to environmental health risks after the educational sessions. Additionally, more than 50% of the nursing students felt readily equipped to screen patients for environmental health risk in clinical practice.

Conclusion: After an education workshop had been conducted in a semi-rural city of a developing country, the results assert increased knowledge attainment with regard to environmental health. Advanced practice nursing students were able to use and reference the toolkit by conducting screening of and providing education to patients in their workplaces. Overall, both undergraduate and graduate students found the educational session and the toolkit to be beneficial. All of them are likely to use and refer to the toolkit throughout their nursing careers. As a secondary outcome, the dean of the college of nursing has expressed interest in

continuing this project as part of the curriculum in the Fall of 2018.

Keywords: *Environmental health, public health, risk assessment, health screening, environmental toxins, environmental hazards, health education, lead, mercury, smog, household chemicals, pesticides, allergens, VOC, Filipino, Philippines, education*

Section I: Introduction

Background Knowledge

Environmental health comprises the physical, chemical, and biological factors that are external to a person and contributes to the assessment and control of the environmental factors that can potentially affect one's health (WHO, 2017). Maintaining a safe environment prevents one from being exposed to toxins that can increase the risk pertaining to the contraction of various diseases (Healthy People 2020, 2017). The negative correlation between environmental exposures and health issues is becoming increasingly significant in the Philippines, where public health is negatively affected by factors such as poverty, lack of education, and population pressures (De La Paz & Colson, 2008). Understanding such connections and addressing the issues in a culturally sensitive manner are significant for achieving positive health outcomes. Lead, mercury, smog, and volatile organic compounds (VOCs) are only a few of the numerous environmental health toxins that are not only carcinogenic but are also associated with neurological, cardiovascular, respiratory, and gastrointestinal diseases (De La Paz & Colson, 2008).

Local Problem

The Philippines is a country in Southeast Asia that consists of more than 7,000 islands in the Western Pacific (De La Paz & Colson, 2008). The challenges associated with the maintenance of public health are rising steadily with the increase of the Philippines' population. According to De La Paz and Colson (2008), Metro Manila, Philippines has the highest rate of unemployment nationwide (13.1%), in addition to low rates of college education. Hummer and Hernandez (2013) established a link between higher education attainment and lower mortality rates. The factors associated with longevity include higher socioeconomic status, access to health

care, positive health behaviors, and the development of social and psychological resources (Hummer, & Hernandez, 2013).

According to the WHO (2017), the annual average air quality index in Manila, Philippines exceeds the recommended safe level by 70%. Outdoor air pollution primarily comes from particulate matter from motor vehicles. Indoor air pollution stems from fuelwood cooking, carbon monoxide, and tobacco smoke. Consequently, about one in four deaths in the Philippines is attributed to air pollution (WHO, 2017). Water pollution also poses significant environmental health risks. About one-fourth of the population in the Philippines lives in households without sanitary toilets (Raturi & Gautier, 2006). Poor water sanitation exposes the public to bacteria, parasites, and pathogens. Additionally, metal pollutants from mining and industrial sources, such as lead and mercury, lead to contamination of the water supply. This accounts for one-sixth of the reported disease cases and around 6,000 premature deaths per year in the Philippines (Raturi & Gautier, 2006).

Ignacio et al. (2015) studied the health status of Filipinos living in Occidental Mindoro, Philippines. Ignacio et al. (2015) assessed the residents' level of health status, knowledge, and practices. Qualitative data was gathered through a questionnaire to assess the participant's demographics, lifestyle, socio-economic status, and current and past health status. Although participants rated themselves as moderately healthy, this was not reflected in the health and lifestyle choices that they made. Ignacio et al. (2015) found that environmental health education related to air, water, and waste management, water quality and availability, toilet sanitation, and disease prevention was warranted.

The environmental health challenges are a cause for concern in the Philippines due to the limited resources and rapidly growing population. To tackle these health issues, the Philippines

developed an action plan with the WHO that supports the national vision "All for Health towards Health for All," as part of the Philippine Health Agenda for 2017 to 2022 (WHO, 2017). This agenda helps to ensure the best health outcomes for all Filipinos, regardless of gender, religion, socio-economic class, or geographic location (WHO, 2017). The five strategic priorities for the WHO's collaboration with the Philippines include saving lives, promoting individuals' well-being, protecting health, optimizing health infrastructure, and using various platforms concerning health (WHO, 2017).

Specific Aims

This project aims to increase the knowledge of environmental health risks in the Filipino population by educating providers on environmental exposures, providing training for the use of the Tagalog Environmental Health and Safety Assessment Tool (TEHSAT), providing resources to increase the screening of at risk populations, and providing more opportunities for education and health promotion. Additionally, this project aims to be incorporated into the curriculum of nursing schools and other health science programs.

PICOT

The PICOT question guiding this DNP project was: Can increasing awareness of environmental health risks and educating providers enhance screening and promote health in the Filipino population?

Search Process

The literature review was composed of two parts, a primary study of environmental health toxins and adverse events to health, and a secondary study of environmental health, education, and disease in the Filipino population. Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, Environment Complete, and Science Direct were the main

databases scanned for this review. Keywords and alternative terms that were used in the search process include: *Environmental health, public health, risk assessment, health screening, environmental toxins, environmental hazards, health education, lead, mercury, smog, household chemicals, pesticides, allergens, VOC, Filipino, Philippines, education.* The search process yielded 1,886 articles on general environmental health issues. Inclusion criteria included articles published in the English language and publications between the year 2000 and 2018. Eight articles were selected given relevancy for the review of literature on environmental health specific to the Filipino population. A study of gray literature was also completed. This includes reviewing guidelines and resources from the World Health Organization (WHO), the Centers for Disease Control (CDC), the American Public Health Association (APHA), Center for Environmental Health (CEH), and Healthy People 2020.

Evidence Rating Strategy

The John Hopkins Nursing Evidence-Based Practice (JHNEBP) Research Evidence Appraisal Tool was used to evaluate the studies selected in the review of evidence (Appendix A). This tool analyzes the quality and strength of the studies based on an evidence rating scale. A majority of the articles were rated as either 2A or 2B.

Review of Evidence

According to the World Health Organization (WHO) (2017), worldwide ambient air pollution accounts for 25% of all deaths and diseases resulting from lung cancer, 17% of all deaths and diseases from acute lower respiratory infection, 15% of all deaths and diseases from ischemic heart disease, and 8% of all deaths and diseases from chronic obstructive pulmonary disease (COPD). Pollutants that are present in the atmosphere provide the strongest evidence for public health concern (WHO, 2017). In addition to air pollution, chemicals and pesticides exert a

significant impact on health. According to the WHO (2017), unintentional poisonings are estimated to cause 193,000 deaths annually, with the majority occurring due to preventable chemical exposures. It is important to note that addressing lead exposure would prevent 9.8% of intellectual disability, 4% of ischemic heart disease, and 4.6% of strokes in the Filipino population (CDC, 2017).

Environmental toxins such as mercury, radon, asbestos, and cigarette smoke are just some of the many pollutants increasingly found in our water, air, and food (Crinnion, 2000). According to Crinnion (2000), a few of the symptoms of toxic damage include changes in one's sleeping patterns, mood, weight, appetite, temperature, sexual interest, hair growth, and skin texture. Exposures to such toxins have a negative effect on the immune system's function, leading to an increase in one's sensitivity towards allergens and decreased response towards fighting infections.

Pesticides. Exposure to chemicals such as pesticides, intensifies the risk of cancers associated with the brain, breasts, and lungs (Crinnion, 2000). According to Woodruff, Zota, and Schwartz (2011), through a study conducted on pregnant women in the United States, participants had 43 different environmental chemicals present in the participants' system, including polychlorinated biphenyls, organochlorine pesticides, perfluorinated compounds, phenols, polybrominated diphenyl ethers, phthalates, polycyclic aromatic hydrocarbons, and perchlorate. Such chemicals are known to interact with hormonal pathways and result in endocrine disruption, negative effects on reproduction, and/or birth defects (Zlatnik, 2016). In the Philippines, pesticides are used prevalently by farmers who plant vegetables, bananas, and rice (Zlatnik, 2016). In addition to agricultural production, pesticides are also use in the home environment, as pests such as insects and rodents are common. Educating the public on ways to

prevent pesticide exposure and use of safer alternatives can help increase awareness and reduce adverse health outcomes.

Air Pollutants. In the Philippines, the increasing number of motor vehicles over the past decade has significantly reduced the country's air quality, where diesel emissions from buses, jeepneys, utility vehicles, and trucks are estimated to be the largest contributor to contaminated air (De La Paz & Colson, 2008). Air pollution is known to contribute to respiratory diseases such as asthma, emphysema, COPD, and lung cancer (WHO, 2017).

Volatile organic compounds (VOCs) are a group of air pollutants that are active in the formation of photochemical smog and ground level ozone production (Balanay & Lungu, 2013). Benzene, 1,2-butadiene, formaldehyde and acetaldehyde are the most common VOCs found to be carcinogenic in the atmosphere of urban areas, as stated by the Environmental Protection Agency (EPA) (Balanay & Lungu, 2013). Balanay and Lungu (2013) assessed the concentration of VOCs from jeepneys in Manila, Philippines. Jeepneys are a common mode of transportation used all throughout the islands of the Philippines. They are semi-enclosed vehicles that can seat approximately 14-20 passengers. Both personal and area VOC concentration samples were acquired from the fifteen jeepney drivers who participated in this study. The results indicated a significantly higher ($p<0.05$) concentration of VOCs in the personal samples obtained from the participants, which increases one's exposure to respiratory problems (Balanay & Lungu, 2013). Many low-income children who spend a majority of their day selling goods out on the streets are at higher risk for asthma and other respiratory symptoms. Jeepney drivers, street vendors, and industrial workers must be educated on the toxic exposures of these air pollutants. Wearing a mask is one way to reduce exposure (Balanay & Lungu, 2013).

Cigarette smoking continues to be prevalent in Southeast Asian countries such as the

Philippines (WHO, 2017). According to the WHO (2017), 17.3 million Filipinos ages 15 years and older are current tobacco smokers. Smokers often begin at a young age and continue on to adulthood. First hand smoking increases the risk for cardiovascular diseases and respiratory diseases, such as asthma, COPD, and even lung cancer. Pregnant women who smoke or are exposed to secondhand smoke, can risk pregnancy complications (WHO, 2017). As a major preventable cause for death and disease, it is important for healthcare professionals to provide resources for smoking cessation and education during patient visits (WHO, 2017).

Lead. Riddell et al. (2007), investigated the prevalence of lead poisoning in children residing in the rural central region of the Philippines. A total of 2861 participants were tested for blood lead levels (BLL) in order to determine the prevalence of toxicity. The sample items tested included drinking water, soil, paint chips, dust wipes, canned tuna, candy wrappers, petrol, motor oil, and fishing weights. The results showed that at least 21% of participants had a BLL that was greater than 10 μg/dl. In addition to the high prevalence of lead in objects both indoors and outdoors, many houses in the Philippines were built before 1978 and are likely to contain lead-based paint. When paint peels or cracks it creates lead dust, which can easily be inhaled or ingested. Awareness of the negative effects of lead and ways to decrease exposure is warranted.

Mercury. Suk et al. (2003) examined the environmental threats to the health of children in Southeast Asian countries. High levels of mercury arising from small-scale gold mining operations in countries such as the Philippines were found. Such activities not only expose the workers to toxic substances, but also contaminate irrigation and water systems. Mercury has affected marine life, seafood, livestock, and agriculture. Exposure and consumption of mercury have been found to have harmful effects on the nervous, digestive, and renal systems (Suk et al., 2003). In addition, such occurrences were determined to be the cause of diarrhea, headaches,

tremors, insomnia, and developmental delays in children (Suk et al., 2003).

Polychlorinated biphenyls (PCBs). Villeneuve et al. (2009) analyzed the effects of polychlorinated biphenyls (PCBs) on sediments and seafood found in Manila Bay. To elaborate, PCBs are a type of industrial chemical, the presence of which has been reported in the coastal seas of the Philippines. This chemical has negative effects on the health of both aquatic and human life. The results identified a significant concentration of PCBs in the oysters and other sea creatures that were tested. A high consumption of seafood could be sufficient to exceed the maximum tolerance levels in this regard. In many areas of the Philippines, fish is considered a main part of the diet due to the abundance of fishing grounds. Consumption of chemicals such as PCBs are known to cause skin conditions, such as acne and rashes, in addition to gastrointestinal discomfort, endocrine changes, and liver cancer (Villeneuve et al., 2009). Consequently, educating the public about safe food handling and the importance of following local fish advisories is crucial to limiting negative health outcomes.

Education. According to Divinagracia (2014), there has been an influx in the number of new nursing schools in the Philippines, which is attributed to the high demand and high paying jobs that nurses have in developed countries. Upon examining the quality of the nursing programs, a survey of 2,392 faculty found that only 58% of the instructors have a BSN, 23% have a Masters of Art in Nursing (MAN), 8% have a Master of Arts (MA), and less than 1% have a doctorate degree (Divinagracia, 2014). A majority of nursing faculty still lack advanced education and training. This ultimately affects the quality of education in these nursing programs. Many students believe that taking a practical nursing course is a faster way of going abroad to work and escape poverty (Divinagracia, 2014).

Theoretical Framework

Leininger's Cultural Care Diversity and Universality Theory is the framework adopted to guide and support this project. Leininger (2007) states that, "Culture care incorporates religion, politics, economics, cultural history, life span values, kinship, geo-environmental factors, and the philosophy of living as potential influencers" (p. 9, para 1). The Filipino culture is comprised of elements that are indigenous, imported, and borrowed. This is a combination of folk traditions, Catholic concepts brought over during the Spanish colonization, and Western medicine. A few of the most common cultural beliefs include "pasma" (hot/cold syndrome), "sumpa" (curse), "namaligno" (supernatural cause), and "kaloob ng Diyos" (God's will) (Abad et al., 2014). Moreover, the cultural and religious beliefs of the Filipino people play a significant role in the way they live their life and the type of healthcare that they seek. When addressing health screening and assessment specific to a population, it is important to examine the way in which cultural influences and behaviors might impact the need for the various kinds of information that are delivered and the approach adopted with respect to patient education.

Along with Leininger's Cultural Care Diversity and Universality Theory, integration of the Health Belief Model (HBD) can be employed as a guide for understanding health behaviors. According to Hayden (2014), "The HBM addresses four major components for compliance with recommended health action: perceived barriers of recommended health action, perceived benefits of recommended health action, perceived susceptibility of the disease, and perceived severity of the disease" (p. 38, para 2). Hence, understanding the factors that affect behavior compliance can help healthcare providers influence and/or bring about positive health outcomes.

This DNP project utilizes both Leininger's Cultural Care Diversity and Universality Theory and the HBM as a framework for understanding cultural differences related to health

beliefs and behaviors. This promotes cultural awareness and culturally appropriate communication related to environmental health. It is important for healthcare professionals to provide a holistic approach to healthcare, taking into consideration all the aspects that are related to culture care.

Section II: Methods

Setting

Pangasinan is a semirural province in the island of Luzon, Philippines. Home to over two million people, only about 19% of the population pursue higher education (Philippine Statistics Authority, 2002). Lyceum Northwestern University (LNU) is one of the colleges that is located in Pangasinan, Philippines. Founded in 1969, it had the reputation of being the "first medical school of the north." They offer both bachelor's and master's degree programs in nursing, in addition to other health sciences and technical-vocational livelihood courses.

Lyceum Northwestern University (LNU) in Pangasinan, Philippines offer courses in business, medicine, dentistry, nursing, international tourism, hospitality management, medical laboratory science, pharmacy, engineering, information and computing studies, maritime education, midwifery, criminal justice, and radiologic technology. With about 4,000 students registered, roughly 1,800 are foreign students who are also enrolled on ground.

LNU began as a small nursing school, and continues to be known for its College of Nursing after expansion. The BSN curriculum pattern incorporates a Community Health Nursing class that focuses on the individual and family as clients, population groups, and the community as clients (Commissioner on Higher Education, 2017). Although concepts related to community health are incorporated into the nursing curriculum, a limited amount of time and education is dedicated to topics concerning environmental health. During clinical or practicum, nursing

students are taught how to utilize basic nursing assessment tools, such as the pain assessment tool and falls risk assessment. However, little to no attention is paid to screening and education with respect to environmental exposures (Commissioner on Higher Education, 2017).

The graduate nursing curriculum pattern consists of classes such as, foundations of nursing, advanced medical-surgical, advanced psychiatric nursing, biostatistics, advanced research, maternal child nursing, administrative nursing education and service, administrative process, evaluation supervision, and intensive practicum. Graduate nursing curricula focus on the following roles: Ambulatory Care, Cardiovascular Nursing, Critical Care Nursing, Enterostomal and Wound Care Nursing, Entrepreneurial Nursing, Gerontology Nursing, Hospice/Palliative Nursing, Nephrology Nursing, Neurologic Nursing, Nursing Informatics, Oncology Nursing, Orthopedic Nursing, and Telehealth Nursing (Commissioner on Higher Education, 2017).

Context

The DNP student worked in collaboration with another DNP student utilizing the same tool to ask permission to use and translate the Environmental Health and Safety Assessment Tool by the original creator (Appendix E). Once permission was attained, the DNP student translated the tool into the Tagalog language (Appendix F, G).

Prior to implementation, the DNP student coordinated and collaborated with the Dean of the College of Nursing on the logistics of the project. This project included face-to-face meeting with 41 students who participated; 25 BSN students and 16 MAN students. This took place on a Saturday, when both undergraduate and graduate students were on campus. The Dean of the College of Nursing prepared a special two-hour timeslot for all students to attend the educational workshop. The DNP student was available after the workshop and onsite the following day to answer any questions or concerns that the students had.

Key Stakeholders

The stakeholders identified in this DNP project were the nursing students, the patients, the Filipino community, the dean of the college of nursing, and the local hospitals and clinics. The DNP student contacted the dean of the college of nursing to propose the aim, objectives, and timeline of the project. Subsequently, a memorandum of agreement (MOU) was signed between the University of San Francisco (USF) and the project site, along with a letter of approval (Appendix H). Permissions to travel, along with secure liability and authority to conduct this project with respect to the Graduate Studies program at USF was obtained (Appendix I).

Communication Matrix

A communication matrix addresses the kind of information that is communicated, who it is communicated to, how often it is communicated, and the method of communication that is being used (Appendix J). Some of the most important elements that need to be addressed in this regard include project coordination and planning, project status, project changes, milestone reports, and variances.

Communication transpired between the project manager and the committee chair, committee members, and on-site project manager. This allowed all members of the project team to be updated accordingly, and it made provisions for more organized and timely responses.

GANTT Chart

A GANTT chart was created to provide a timeline of the events for the project from beginning to end (Appendix K). The aforementioned chart starts with a literature review, which determined the need for the project. After the topic was approved, the researcher formed a project team.

Starting from December 2017, the researcher started communicating with the stakeholders in order to share the data and the project's proposal. Subsequently, the project manager conducted educational sessions for the nursing students regarding the use of the environmental risk assessment. The toolkit was implemented by the start of 2018. Moreover, the project metrics were implemented, and data collection was obtained eight weeks post implementation. The written portion of the DNP project began in February 2018, and the project presentation and dissemination of the results took place shortly thereafter.

SWOT Analysis

A Strengths, Weaknesses, Opportunities, Threats (SWOT) analysis was conducted to identify the internal and external aspects that might affect the implementation of the environmental health risk assessment toolkit (Appendix L). This provides the project manager with the opportunity to assess potential outcomes that could generate positive or negative results.

Strengths of this project include the need for environmental health education in the Philippines based on the literature review and gap analysis. This need is also evident in the National Environmental Health Action Plan, a collaborative initiative between the WHO and the Philippines. Another strength is the support of site stakeholders and increased transfer of culturally sensitive knowledge among nursing students and clinical patients. With a university site that has a high number of Filipino nursing students, greater opportunities pertaining to patient education are present, without concern for language or cultural barriers. Moreover, the project manager speaks the language of the region, and is familiar with the environment.

The possible weaknesses of this project include limited time, resources, and budget. These limitations can affect the opportunities pertaining to its implementation. A single educational session was offered to nursing students owing to such constraints. Factors such as

time and resources can also affect the quality and location of the educational sessions. These potential weaknesses might not be ideal for an effective learning environment.

The opportunities of this project include increasing culturally sensitive care, decreasing morbidity and mortality, promoting health education, and fostering disease prevention. By educating future healthcare providers, communication with patients is improved, patient care is enhanced. This grants healthcare providers the opportunity to bridge the gap between the culture of medicine and the gap between the culture of medicine and patients' value systems is bridged.

The potential threats of this project include issues pertaining to traveling, lack of support from stakeholders, lack of participants, limited time, misconceptions about the toolkit, and language or cultural barriers. Such barriers can lead to the misuse of the screening tool. Some nursing students and professors could hold a different opinion regarding the benefits of the environmental health risk assessment toolkit.

Budget

The overall budget for this project was calculated as direct and indirect expenses (Appendix M). Direct expenses included project materials, modes of travel, and the refreshments provided during the educational sessions. The total cost for out-of-pocket expenses was $1,620. This included airfare, parking, and transportation to and from the project site for the two separate sessions. The project materials cost approximately $100 in total, which included handouts, surveys, folders, and writing instruments. In-service refreshments for the two sessions were approximately $200, or $100 per day, whereas the indirect expenses included time and unanticipated events. Moreover, the time and remuneration of the DNP student was also included in the indirect expenses. An additional $500 was saved for unanticipated events, which brings the cost of the indirect expenses to $6,575 and the total budget to $8,195.

Environmental health toxins are associated with some of the top chronic conditions, such as cardiovascular disease, asthma, COPD, and cancer. According to the American Public Health Association (APHA) (2012), healthcare costs for cardiovascular conditions is approximately $107 billion, respiratory conditions is around $64 billion, and cancer is nearly $82 billion annually (Appendix M). Additionally, these chronic conditions result in lost productivity costs ranging anywhere from $95 billion to $182 billion annually (Appendix M). Lost productivity has a significant effect on the economy, in conjunction with lower productivity levels and higher mortality risk among workers. Public health interventions that target chronic conditions can decrease injury, diseases, complications, and death, which will lead to a healthier community, workplace wellness, and improved quality of life (APHA, 2012).

Several factors were considered in calculating the overall benefit of this project. For this particular cost-benefit analysis, information will be based on the prevention of primary outpatient hospital visits related to asthma. Based on the limitations discussed, the projected goal of decreasing primary outpatient hospital visits related to asthma for the first year post implementation of the project is at least 25%. The cost of a primary outpatient visit by hospital level in the Philippines is roughly $14.63 United States dollars (USD) (WHO, 2005). The average cost of asthma per case in the Philippines is $141 per visit and the average number of cases per month is 67 (Tsilaajav, 2009). This equals roughly 804 reported cases of asthma per year, yielding $113,364 in primary outpatient hospital costs. The projected cost to implement this project is $2,660 in one educational session and $5,320 in one year, when implemented twice. Implementing the educational session a second time ensures that incoming nursing students receive the same education and training and have the toolkit available as a resource during their clinical practicum or workplaces. For this specific cost-benefit analysis, increasing education and

awareness of environmental health risks and promoting environmental health screening in the Filipino community can help decrease emergency outpatient hospital visits. This places the cost-benefit ratio at 1.7 for the first year, and a result greater than or equal to 1.0 suggests a positive return.

Interventions

Educational Phase. The educational phase was led by the DNP student and consisted of three parts. The first part included a PowerPoint presentation on environmental health, risks associated with environmental hazards, application to the Filipino population, and the importance and outcomes of appropriate screening (Appendix D). The 45-minute presentation was conducted in English and took place in one classroom hall. A total of 25 BSN students and 16 graduate students were present. All of the students were engaged and at least half of the BSN and MAN students actively participated by answering questions and/or providing comments.

The second part of the educational phase included simulation using hands on training for tool practice proficiency. The nursing students and MAN students incorporated the information that they learned from the PowerPoint presentation and practiced utilizing the screening tool on each other. They paired up with the student sitting next to them and analyzed the case study utilizing the screening tool for practice, with the aim of developing comfort and proficiency with use of the tool (Appendix O).

Finally, the last part of the educational phase was for wrap-up and debriefing. The nursing students and graduate students were encouraged to share any feedback they had pertaining to their experience during the educational workshop. A final post-educational workshop survey was provided to determine what the students learned, how the sessions impacted them, how likely they are to use what they learned in their practice, and any other

comments they might have regarding their experience (Appendix Q). Feedback was collected to finalize the plan for the implementation of the information provided into clinical practice.

Delivery of Screening into Practice Phase. The third phase of this project was designed to gain further insight into the value of this project, but will not be directly measured in the outcomes for the immediate proposed goal. After receiving education and knowledge on environmental health and practicing the use of the tool, students were advised to take the tool to practice at their various sites. These sites included both hospital and clinic settings. For the next eight weeks, 16 MAN students attempted to use or reference the screening tool during their clinical rotations and/or in their work sites. On a weekly basis, the DNP student contacted the dean of the college of nursing to collect and address any questions or feedback that the students had. Eight weeks post implementation of the educational project, an online survey via Survey Monkey was administered to the MAN students to assess usability and feasibility and to gather any additional data and feedback of the toolkit (Appendix R).

Method of Evaluation

Qualitative methods of analyzing data were used during the educational phase and implementation into practice phase of this project. Analysis involved a pre/post-test questionnaire, post simulation survey, post-educational workshop survey, and tool usability survey. The Likert scale and interval rating scale provided valuable data and feedback regarding the educational training session and usability and feasibility of the toolkit.

The desired outcomes for this project were:

1. To increase awareness of environmental health risks to 100% of nursing students in the local region, as evidenced by their personal readiness survey scores that state they

are either “likely” or “extremely likely” to identify hazardous exposures in the home and environment that can lead to adverse health effects.

2. To increase the nursing students’ personal knowledge related to environmental health risks, trends, screening tools, and current research, as evidenced by a minimum score of 80% on the post-test.
3. To prepare 100% of the participating nursing students to screen patients for environmental health risks using the TEHSAT tool, as evidence by their personal readiness survey score that shows their likeliness to use the tool and provide patient education during practice.

Pre/Post-Test. A pre-test and post-test questionnaire was given before and after the PowerPoint presentation (Appendix N). The pre/post-test was developed by the DNP student. It included one true or false question and four multiple choice questions. The content of the pre/post-test correlated with both factual and key environmental health information presented in the PowerPoint. Here, the DNP student aims to achieve at least 80% knowledge attainment. Results of the pre-test and post-test were evaluated using Microsoft Excel. The answers were tallied and a percentage was calculated based on the number of students that participated. All 25 BSN students and 16 MAN students participated in taking both the pre-test and post-test, and no questions were left unanswered.

Post-Simulation Survey. The post-simulation survey was composed of two parts (Appendix P). The first part consisted of a single question assessing the overall opinion of the case study simulation using an interval rating scale. The second part consisted of a series of statements related to the case study. Each statement was assessed using a Likert Scale. The statements helped determine the following:

- If the students understood the purpose and objectives of the case study
- If the scenario presented a real-life situation
- If the students were able to incorporate what the learned from the PowerPoint presentation into the case study
- If the toolkit was easy to use and understand
- If they learned from the case study
- If the exercise helped them identify their strengths and weaknesses
- If they felt comfortable educating their patients and/or colleagues on the hazardous effects of environmental exposures to human health.

Post-Educational Workshop Survey. The post-educational survey was given to the students at the very end of the workshop (Appendix Q). The first question in this survey assessed the nursing students' overall opinion of the educational session using an interval rating scale. The second question consisted of a series of statements related to the case study simulation. Each statement was also evaluated using an interval rating scale. This helped to assess whether students were able to recognize sources of hazardous exposure, identify links between toxic exposure and adverse health effects, and educate their patients and/or colleagues on environmental risks and exposures. The following three questions were open ended questions regarding what the students liked most about the educational workshop, what they liked least about the educational workshop, and what suggestions they had to help improve the educational workshop. These responses help the DNP student recognize what aspects of the workshop worked and what areas might need more improvement. The responses that the students gave were analyzed in themes using word clouds. The sixth question in this survey assessed the overall content of the educational workshop using a Likert Scale. This gives the DNP student an

idea whether the content was too advanced, too basic, or just right. Finally, the last question in this survey was used to determine whether or not the students thought the information and materials presented were free from bias.

Tool Usability Survey. The tool usability survey was administered to the students online using Survey Monkey (Appendix R). The first question determined what setting the graduate student works in. This is useful in analyzing what type of patient population was screened during the implementation into practice phase. The second question quantified how many times the MAN student used or referenced the toolkit. This determined the usability of the screening tool during practice. The following four questions that were asked in this survey assessed the feasibility of the toolkit using a Likert Scale. Students evaluated their comfort level and likeliness to use or reference the toolkit. The last three questions in this survey were open ended questions regarding what the students liked most about the toolkit, what they liked least about the toolkit, and what suggestions they had to help improve the toolkit. These responses help the DNP student recognize whether the toolkit was valuable and if anything needed to be changed. The responses that the students gave were analyzed again in themes using word clouds.

Analysis

Data obtained was grouped together into a chart based on the test, survey, and type of question. All answers provided from each student were plotted into a chart. Through Excel, the pre/post-test was analyzed using bar graphs to illustrate improvement in overall scores after the educational presentation. Together, pie charts and bar graphs were used to show the rating the students gave for questions related to the post-simulation and post-education workshop surveys. This was depicted in percentage form.

To analyze the themes that rose from the students' feedback, an online word cloud generator developed by Jason Davies was utilized. Words that had larger fonts in the word cloud depicted responses that appeared more often. This provided a better visualization of the participants' most common feedback responses.

Ethical Considerations

A statement of the non-research determination was submitted and approved by the Doctor of Nursing Practice (DNP) committee (Appendix S). Subsequently, a memorandum of understand (MOU) was signed between the University of San Francisco and Lyceum Northwestern University. All the nursing students included in this study participated voluntarily. No identifying information was collected from the graduate students who participated in the practice phase. Furthermore, the online surveys were strictly anonymous, and the participants were allowed to withdraw from the project at any point in time.

This project promotes the provisions of the American Nurses Association (ANA) Code of Ethics surrounding beneficence, patient advocacy, safety, and health promotion. As stated in the ANA Code (2015), "The nurse practices with compassion and respect for the inherent dignity, worth, and unique attributes of every person." This promotes a holistic approach to healthcare and supports the framework of this project. The nursing students and Master's prepared students also practice patient advocacy through their screenings and assessments. It provides them with the opportunity to promote health and prevent disease, while educating the community about environmental health safety and well-being.

Section III: Results

Pre/Post-Test. Pre-test and post-test results depict significant knowledge attainment. Data derived from the results demonstrated that an average of 79% of the students were able to

gain a better understanding of environmental health principles after participating in the educational sessions (Appendix T). Altogether, 25 BSN students and 16 MAN students took both the pre-test and the post-test. All of the questions were answered.

Post Simulation. After the simulation session, 25 BSN students and 16 MAN students filled out a survey. Results show that 2.33% of the students rated the case study as good, whereas 34.88% rated it to be very good, and 62.79% marked it as excellent (Appendix U). The following results represent the total percentage of students who agreed and strongly agreed to the post-simulation survey questions:

1. 100% of the students clearly understood the purpose and objectives of the case study exercise.
2. 95.35% thought that the scenario presented a real-life situation.
3. 95.35% were able to incorporate what they had learned during the educational session into the case study exercise.
4. 100% of the students found that the toolkit was easy to use and understand.
5. 97.67% felt that they had learned a lot from the case study.
6. 88.37% stated that the case study helped them identify their strengths and weaknesses.
7. 93.02% feel comfortable educating their patients and/or colleagues regarding the hazardous effects of environmental exposures to human health, after attending the educational workshops.

Post-Educational Workshop Survey. Post-educational surveys were provided at the end of the workshop. Overall, 41.9% of the nursing students thought that the session was very good, whereas 58.1% thought that it was excellent (Appendix V). When evaluating the educational

objectives, the students were either likely or extremely likely to be capable of identifying potential sources of hazardous exposure in patients' home and environment, in addition to identifying the links between toxic exposure and adverse health effects and educating patients and/or colleagues about environmental risks and exposures. Furthermore, 72.1% of the students felt that the content material was just right, while 23.3% found it to be advanced, and 4.7% thought it was too advanced. All of the students agreed that the information and material presented was free from commercial bias (Appendix V).

It is important to note that word clouds were used to portray the qualitative responses obtained regarding the educational workshop. "Educational" and "informative" were the top two themes that were used to describe what the students liked the most about the workshop, whereas "none" and "limited time" were the top two themes used to describe what the students liked the least. When asked how the workshop might be improved, the main themes that emerged were: "None," "more examples," and "more visuals" (Appendix V).

Tool Usability Survey. After the training, students were encouraged to use the tool in practice and an online survey was conducted to collect feedback pertaining to usability in various clinical settings. Sixteen graduate nursing students participated in the delivery of screening into practice phase. The results revealed that 93.8% of the participants work in a hospital setting, while 6.3% work in a clinic. Out of the 16 participants, 12.5% used or referenced the toolkit in their workplace one to two times, 12.5% did so three to five times, and 56.3% made use of it more than five times. All of the participants agreed that the toolkit was easy to use and understand; they also reported that it served as a guide during their patient assessments. Additionally, all of them felt comfortable when providing patient education concerning environmental health risk and are likely to refer to the toolkit again in the future. "Useful," "easy

to understand," and "designed for locals" were the top three responses that the students provided when asked about what liked the most about the toolkit. In addition, when the participants were asked what they liked the least about the toolkit and which areas might require improvement, all of them provided the response "none" (Appendix W).

Section IV: Discussion

Summary

This DNP project was delivered over ten weeks, with two weeks dedicated for teaching and being onsite, and eight weeks for the delivery of screening into practice and final evaluation. Overall, a review of the results manifested positive findings, consistent with the goals of this project. After the conclusion of the educational sessions, 79% of the nursing students were able to expand their knowledge related to environmental health risks. This is close to the project aim of 80%. A majority of the students felt that the content of the educational sessional was extremely helpful and useful for their career. The case study gave the students an opportunity to incorporate the environmental health objectives that they learned and employ the toolkit in a simulated situation. At least 60% of the nursing students felt readily equipped to screen their patients for environmental health risk during practice. This number exceeded the project aim of 50%.

It is a known fact that issues related to environmental health are not incorporated adequately in nursing curriculums. In light of this, this project has helped to improve the knowledge and awareness concerning environmental issues in one nursing school in the Philippines. Educating the healthcare providers of the future promotes and empowers the youth to become health educators and leaders within their community.

In addition to meeting the project aims, this project has also produced secondary

outcomes. The dean of the College of Nursing has expressed interest in continuing this project as part of the future curriculum. Although the core materials and resources are already produced, incorporation of this project will still require some time, planning, collaboration, and coordination with the school. Overall, incorporation of this project will increase awareness of environmental health risks in patients through their healthcare providers. Additionally, this will provide nurses and other healthcare providers with a readily available tool that they can reference and use throughout their careers.

Interpretation

This quality improvement project was conducted to increase the knowledge with regard to environmental health risks in the Filipino population by incorporating more education pertaining to environmental health into the school curriculum and training both undergraduate and graduate nursing students to conduct environmental health screenings for their patients. Overall, the 16 graduate students who participated in the inclusion of the practice phase supported the use of the toolkit. During the initial eight weeks of the screening, at least half of the participants were able to use or reference the toolkit more than five times in their workplace. Since a majority of these students work in a hospital setting, the work flow may be substantial, thereby limiting the amount of time spent in screening and patient education. However, the feedback from the participants suggested that they found the toolkit is useful and in-keeping with the cultural sensitivities of the Filipino population. Altogether, the students found the toolkit to be feasible, agreeing that it was a good reference to have accessible at hand. One training session was sufficient enough to produce positive outcomes overall. Additional sessions would have been beneficial as well.

Limitations

Given that this project has aims to reach an international audience and site, there were several limitations. The first limitation to the implementation of the project is the budget. This may affect the number of nursing students trained, the extent of the training materials, and the amount of time spent in training. With the availability of more resources and sources of funding in the future, the researcher may be able to reach out to other students studying at other universities in the Philippines and other developing countries, an initiative that could lead to better project outcomes.

The second limitation is the timeline for delivery. While the total project spanned across ten weeks, where two weeks are dedicated to teaching and being onsite, and eight weeks for data collection, not being on site as a project manager during the entire time may throw the credibility of the results into question. More time for training and educational sessions is beneficial and can lead to higher levels of knowledge attainment and comfort.

The state of clinical practice in the Philippines presents as an overall limitation. Although the nursing students may understand and support the use of the toolkit, they may not have the time to implement it during clinical and/or work rotations due to the busy workflow, high patient volume, and lack of established protocols and/or patient cooperation. More firmly established protocols for initiation of the toolkit into practice and evaluation of this in a more scheduled format would allow for better use of the tool.

Finally, language and cultural barriers are another limitation. Although all of the students understood and knew how to speak English, there were ten international students who came from several different countries. The international students were not fluent in Tagalog and may have

experienced difficultly with communication with any of their Filipino patients, along with cultural differences.

Conclusion

Improving awareness with regard to environmental exposures promotes health, prevents injury and disease, and enhances the quality of life (Healthy People 2020, 2017). An educational-based program is one way to spread health-related information to the community. Since healthcare providers are the frontline to providing education to the patient and combating health disparities, it is important that the healthcare providers of the future possess proper education. Significant improvements in the health literacy of marginal populations can be achieved through the use of culturally sensitive screening tools. As a healthcare provider, it is important to become aware of the social determinants of health that impact patients. When working with the minority or rural populations, healthcare providers have the opportunity to employ the principles of cultural stewardship for the prevention of diseases and the promotion of health.

Although many screening toolkits exist and are used in healthcare settings, little attention is paid to the screening and education concerning environmental exposures as part of routine health promotion. After the implementation of an educational workshop in a semirural city of a developing country, the results prove an increased knowledge pertaining to environmental health and a willingness to extend that knowledge to patients and practice environments. Nursing students with a Master's degree were able to use and reference the toolkit by providing screening and education to their patients at their workplaces. Overall, both undergraduate and graduate students found the educational session and toolkit to be beneficial. The researcher is of the opinion that all of the students are likely to use and reference the toolkit throughout their nursing careers.

The best way to disseminate the toolkit is to have the educational module incorporated into the school curriculum. This can be conducted through the use of online modules, PowerPoint presentations, and Webinars. Educating the student studying in other schools, universities, or arranging outreach programs is another way to reach out and spread awareness related to environmental health risks to the community.

Section V: Other Information

Funding

The funding for this project was through personal savings and financial assistance from direct family members. This included monetary travel support from the direct family members living in the United States; and food, lodging, and local transportation assistance from the family members in the Philippines. There are no other financial disclosures related to this project.

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Appendices

Appendix A: Evidence Table

Author, Date, Title	Purpose	Sample/Methods	Findings/Conclusions	Evidence Level
Woodruff T., Zota A., & Schwartz J. (2011). Environmental chemicals in pregnant women in the United States.	Analyzed biomonitoring data from the National Health and Nutritional Examination Survey (NHANES) to characterize both individual and multiple chemical exposures in U.S. pregnant women.	Analyzed data for 163 chemical analytes in 12 chemical classes for subsamples of 268 pregnant women from NHANES 2003–2004, a nationally representative sample of the U.S. population.	Pregnant women in the U.S. are exposed to multiple chemicals. Further efforts are warranted to understand sources of exposure and implications for policy making.	2A
Balanay, J., & Lungu, C. (2009). Exposure of jeepney drivers in Manila, Philippines to selected volatile organic compounds (VOCs)	The objective of this study was to assess the occupational exposure of jeepney drivers to selected volatile organic compounds (VOCs) in Manila, Philippines.	Personal sampling was conducted on 15 jeepney drivers. Area sampling was conducted to determine the background VOC concentration in Manila as compared to that in a rural area. Both personal and area samples were collected for 5 working days. Samples were obtained using diffusive samplers and were analyzed for 6 VOCs	The personal samples had significantly higher ($p<0.05$) concentrations for all selected VOCs than the urban area samples. Among the area samples, the urban concentrations of benzene and toluene were significantly higher ($p<0.05$) than the rural concentrations. The personal exposures for all the target VOCs were not significantly different among the jeepney drivers.	2B

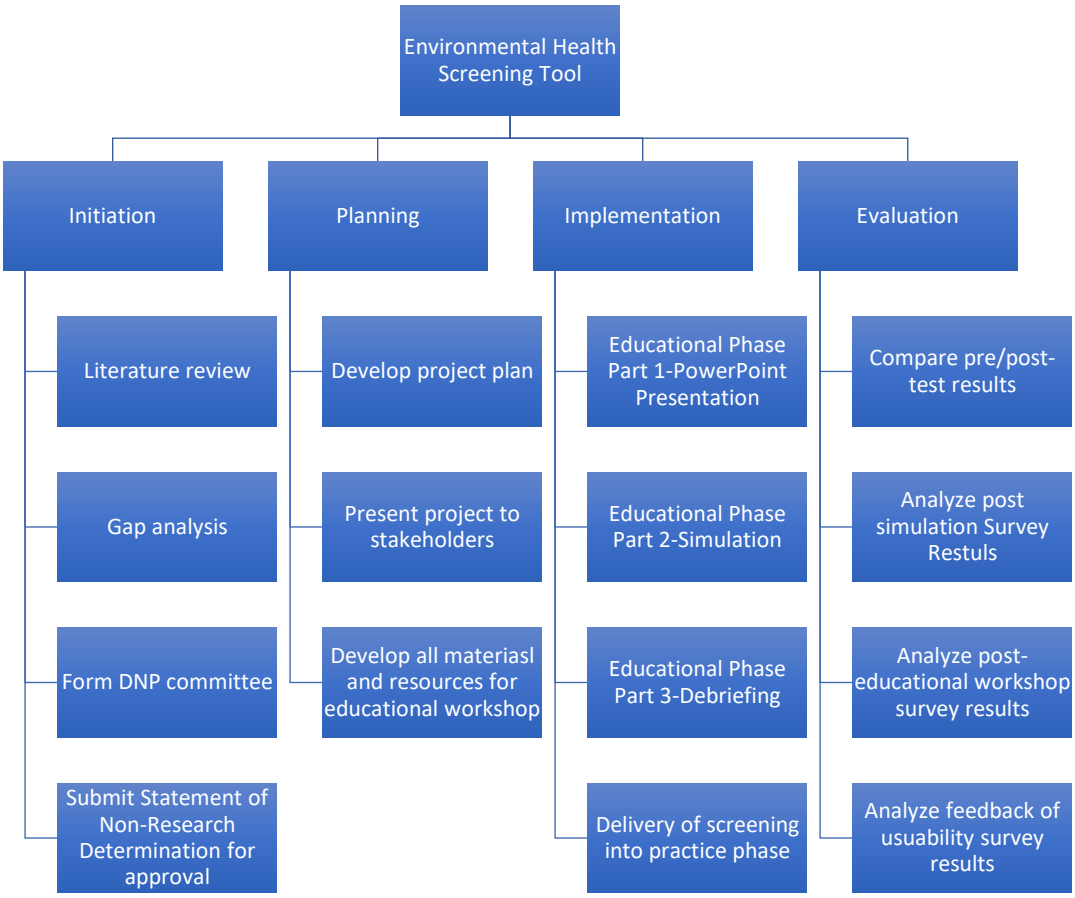
Appendix A: Evidence Table (cont.)

Riddell, T., Solon, O., Quimbo, S. Tan, C., Butrick, E., & Peabody, J. (2007). Elevated blood-lead levels among children living in the rural Philippines.	To describes the prevalence of lead poisoning among children living in a rural area that covers about one third of the Philippines. Researchers explore the correlations of lead toxicity in this population and describe an environmental investigation to characterize an unexpectedly common toxic health hazard.	Researchers sampled a population of children from the Visayas region in the central Philippines, covering approximately one third of the country's geographical area. From December 2003 to September 2004, the survey collected blood lead levels (BLL) together with demographic, socioeconomic and child health data points. Supplemental lead-testing among a sub-sample of the most exposed children assessed the sources of environmental lead exposure.	Elevated BLL are common among children in the Visayas, and may signify an under-recognized threat to children living in rural areas of other developing nations. This setting has varied environmental sources of lead. Observed correlates of BLL may be of clinical, environmental and public health utility to identify and mitigate the consequences of lead toxicity.	2B
Villeneuve, J., Cattini, C., Bajet, C., Navarro-Calingacion, M., & Carvalho, F. (2010). PCBs in sediments and oysters of Manila Bay, the Philippines.	This survey provided insight into the contamination of the bay and investigated contaminants' temporal trends and assisted in planning for future studies.	Polychlorinated biphenyls (PCBs) were analyzed in sediment and oyster samples from coastal sites inside Manila Bay. Concentrations for 13 individual PCB congeners and total PCBs were reported herein.	A significant correlation (p 5 0.01) was found between SPCB concentrations in oysters and in sediments. Further environmental surveillance is recommended in order to prevent public health risks that may be posed by these chemicals.	2A

Appendix B: Gap Analysis

Current State	Action Steps	Goals
-Need for supportive interventions for the Philippine National Environmental Health Action Plan (NEHAP) on environmental health issues, safety, and education, especially in the academe level -Limited amount of time and education dedicated to topics concerning environmental health -Little to no attention given to screening and education with respect to environmental exposures	-Define the gap and scope of the problem -Conduct literature review -Produce educational workshop for nursing students and advanced practice nursing students in academe level -Provide environmental health screening tool and resources for reference and use	-Enhance the understanding of environmental health risks impacting and affecting patients in the Philippines by providing culturally sensitive care and education to the Filipino community and implementing screening and assessment techniques to the future healthcare providers -Incorporate project into school curriculum

Appendix C: Work Breakdown Structure



Appendix D: PowerPoint Slides

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CHANGE THE WORLD FROM HERE

Environmental Health Screening, Assessment, and Education

Alyssa Samson BSN, RN, PHN

1

Objectives

- Identify potential sources of hazardous exposure in the home and environment
- Identify the links between toxic exposure and adverse health effects
- Learn how to reduce risk of hazardous exposure
- Learn the importance of the healthcare provider's role in environmental health education and disease prevention
- Learn ways of incorporating environmental health principles into daily practice

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2

What is Environmental Health?

Environmental health is the branch of public health that:

- Focuses on the relationships between people and their environment
- Promotes human health and well-being
- Fosters healthy and safe communities

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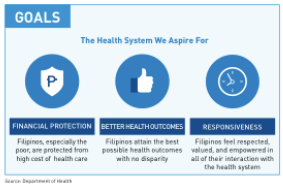
3

Philippine Health Agenda 2017-2022

Five Strategic Priorities for WHO Agenda with the Philippines:

- Save lives
- Promote well-being
- Protect health
- Optimize health architecture
- Use platforms for health



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4

Statistics

Did you know?

- An estimated 12.6 million deaths each year are attributable to unhealthy environments - nearly one in four of total global deaths
- As of August 2017, only 1/3 of countries have legally binding controls on lead paint
- According to WHO, the safe level for PM2.5 is 10 micrograms per cubic meter (µg/m3) of air in a year. In Manila, the annual average of these pollutants is at 17 µg/m3
- Children under five and adults between 50 and 75 years old are most affected by the environment
- In the Philippines, about 1 in 4 deaths are attributed to air pollution

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Environmental Hazards

- Biological
- Chemical
- Physical
- Cultural
- Lifestyle choices

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Appendix D: PowerPoint Slides (cont.)

Top Ten Controllable Environmental Hazards

1. Tobacco smoke
2. Radon
3. Asbestos
4. Lead
5. Combustion gases
6. Water
7. Household chemicals
8. Pesticides
9. Allergens
10. Food poisoning

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Tobacco Smoke

Did you know?

- Smoking leads to disease and disability and harms nearly every organ of the body
- Smoking is the leading cause of preventable death
- On average, smokers die 10 years earlier than nonsmokers
- Tobacco smoke contains more than 7,000 chemicals and about 70 cause cancer

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Health Effects

Health Effects of Cigarette Smoking and Secondhand Smoking

- Lung cancer
- Cardiovascular diseases
- Chronic obstructive pulmonary disease (COPD)
- Asthma
- Pregnancy complications

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Third Hand Smoke

Chemicals found in third hand smoke:

- Hydrogen cyanide (used in chemical weapons)
- Butane (used in lighter fluid)
- Toluene (found in paint thinners)
- Arsenic
- Lead
- Carbon monoxide
- Polonium-210 (highly radioactive carcinogen)

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Third Hand Smoke

Exposure

Any indoor environment used long term by smokers

- Homes
- Hotels
- Cars

Who is affected by third hand smoke?

- Babies
- Toddlers
- Children

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What is my role as a healthcare professional?

- Investigate
- Enforce
- Educate

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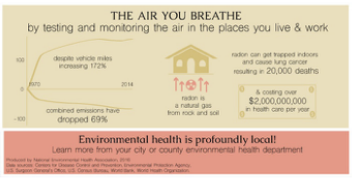
Appendix D: PowerPoint Slides (cont.)

Radon

What is radon?

- Naturally occurring gas from the decay of Uranium in the ground
- Colorless, odorless, tasteless gas
- Releases radioactive byproducts that are inhaled



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Radon

Who is at risk?

- Everyone
- Children more susceptible than adults
- People living close to volcanic sites

Health effects

- Lung cancer

How to prevent exposure?

- Radon testing
- Radon mitigation systems

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Asbestos

What is asbestos?

- Fibrous minerals (amosite, chrysotile, crocidolite, and the fibrous varieties of tremolite, actinolite, and anthophyllite)
- Manufactured goods, mostly in building materials (roofing shingles, ceiling and floor tiles, paper products, and asbestos cement products)
- Friction products (automobile clutch, brake, and transmission parts)
- Heat-resistant fabrics, packaging, gaskets, coatings

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How might I be exposed to asbestos?

- People working in industries that make or use asbestos products
- People who are involved in asbestos mining
- People living near these industries may also be exposed to high levels of asbestos in air
- Asbestos fibers may be released into the air by the disturbance of asbestos-containing material during product use, demolition work, building or home maintenance, repair, and remodeling
- Drinking water may contain asbestos from natural sources or from asbestos-containing cement pipes

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Symptoms of Asbestos Exposure

- Shortness of breath, wheezing
- A persistent cough that gets worse over time
- Blood in the sputum coughed up from the lungs
- Pain or tightening in the chest
- Difficulty swallowing
- Swelling of the neck or face
- Loss of appetite
- Weight loss
- Fatigue
- Anemia

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How can I reduce risk of exposure to asbestos?

People who work around asbestos or materials that contain it

- Get proper training for handling
- Wear proper personal protective equipment

People who live in older homes

- Avoiding disturbing materials that might contain asbestos
- Talk to local environmental agency or certified asbestos contractor
- Use wet cleaning methods

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Appendix D: PowerPoint Slides (cont.)

Lead

What is lead?

- Soft, blue-gray metal that is mined from the earth's crust
- Used for many industrial purposes
- Widely used in paint and gasoline until the 1970's
- Present in all parts of the environment, including inside homes

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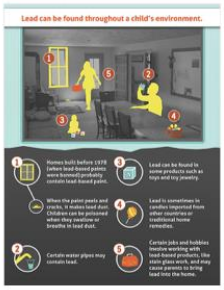
Lead

Main routes of exposure:

- Household environment (before 1978)
- Water
- Food
- Air
- Toys
- Jewelry



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Health Effects of Lead

- Slowed growth
- Lower IQ
- Learning and behavioral problems
- Anemia
- Neurological problems
- Reproductive problems
- Cardiovascular effects
- Reduced kidney function

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Combustion Gases

What are combustion gases?

- Carbon monoxide
- Nitrogen oxides
- Sulfur dioxide

Health Effects

- Flu-like symptoms
- Respiratory illnesses
- Death

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Reducing Exposure to Combustion Gases

- Take special precautions when using unvented kerosene or gas space heater
- Use exhaust fan or proper ventilation over gas cooking stove
- Install fire detector and carbon monoxide monitor in home

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Water

Tap water from any system can be contaminated from

- Chemicals and minerals that occur naturally
- Viruses, bacteria, and parasites
- Local land-use practices (pesticides)
- Industrial practices
- Sewer overflow and failing septic systems

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Appendix D: PowerPoint Slides (cont.)

Safe Drinking Water

- Learn where your water comes from
- Use water filter and change as directed
- Bottled water

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Household Chemicals

Select, use, store, and discard wisely

- Keep out of reach of children and pets
- Well ventilated rooms
- Keep in original container
- Do not mix cleaning products
- Follow directions on container

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Safer Cleaning Alternatives

- Vinegar
- Lemon juice
- Baking soda and water
- Olive oil

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Pesticides

What are pesticides?

- Pesticides are materials used to control pests such as insects, rodents, weeds, molds and germs
- Pesticides come in various forms, including sprays, liquids, powders, and foggers

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What are the health effects of pesticide exposure?

Acute exposure to pesticides may cause short-term effects such as:

- Headaches
- Dizziness
- Muscle twitching
- Weakness
- Tingling Sensations
- Nausea

Long-term exposure to pesticides may cause serious health effects such as:

- Birth defects
- Learning disabilities
- Behavioral changes
- Organ damage
- Cancer
- Asthma symptoms

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How can I reduce or avoid pesticide exposure?

- Prevent pests from entering your home or garden
- Consider non-chemical methods for controlling pests
- Follow label directions exactly when mixing and applying pesticides
- Store and dispose of pesticides properly
- Minimize environmental impacts from pesticide use

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Appendix D: PowerPoint Slides (cont.)

Allergens

What causes an allergic reaction?

- Allergen triggers immune system to produce a special type of antibody (IgE) → Inflammatory response

Common Symptoms

- Stuffy or runny nose
- Itchy or watery eyes
- Sneezing
- Asthma
- Skin rashes

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Examples of Allergens

Indoor allergens:

- Dust mites
- Animal allergens (pet dander, skin flakes, urine)
- Mold spores
- Cockroach particles

Outdoor allergens:

- Tree pollens
- Grass pollens
- Weed pollens

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Managing Exposure to Allergens

Tips to controlling allergy symptoms:

- Keep a clean household
- Groom your pet
- Exterminate
- OTC allergy medications

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Prevent Food Poisoning

- Clean – Wash your hands and surfaces often
- Separate – Avoid cross contamination
- Cook – To the right temperature
- Chill – Refrigerate promptly

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Environmental Assessment Tool

Home Environmental Health and Safety Assessment Tool

	Assessment	Yes	No	N/A	Standard of Practice
	Home built before 1978	O	O	O	• Test homes built before 1978 for lead.
	Home tested for lead	O	O	O	
	Living space in basement	O	O	O	• Maintain home to prevent chipping or peeling paint
	Attached garage	O	O	O	
	Home radon test	O	O	O	• Remove shoes indoors
	Home radon ventilation system	O	O	O	• Test first three floors of all homes for radon
	Living space in basement	O	O	O	• Do not idle car in garage
	Combustion heating source	O	O	O	• Ensure proper venting of all combustion heating sources.
	Gas, kerosene or propane space heater	O	O	O	• Annual assessment to ensure proper function.
	Wood stove	O	O	O	
	Fireplace	O	O	O	• Do not use grills, or generators indoors

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	Gas dryer	O	O	O	• Gas dryers, hot water heaters and stove need to vent outdoors
	Vented	O	O	O	
	Gas hot water heater	O	O	O	
	Vented	O	O	O	
	Gas stove	O	O	O	
	Well water	O	O	O	• Routine well testing and maintenance of private wells.
	Lead pipes	O	O	O	
	Water tested for contaminants	O	O	O	• Review consumer confidence reports for public water supply
	Known contaminants:	O	O	O	
	Smoke detector	O	O	O	• Smoke detector on all floors and in bedrooms
	Carbon monoxide detector	O	O	O	
	Fire extinguisher	O	O	O	• Carbon monoxide detector on all levels in homes with combustion source or garage
	Fire evacuation route	O	O	O	
	Emergency phone numbers	O	O	O	
	Disaster plan	O	O	O	
	Shelter –in-place supplies	O	O	O	

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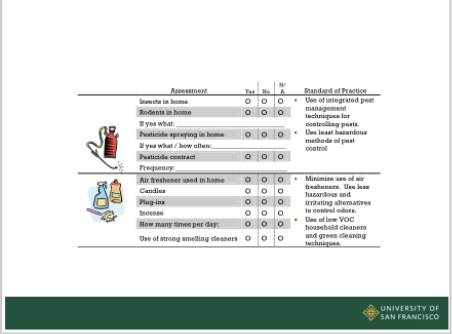
Appendix D: PowerPoint Slides (cont.)



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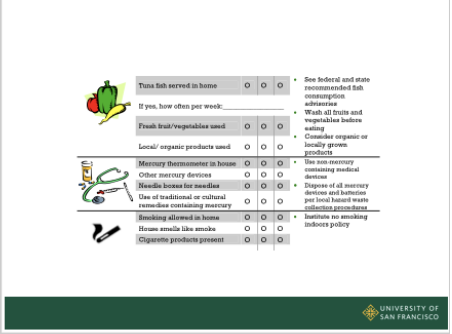

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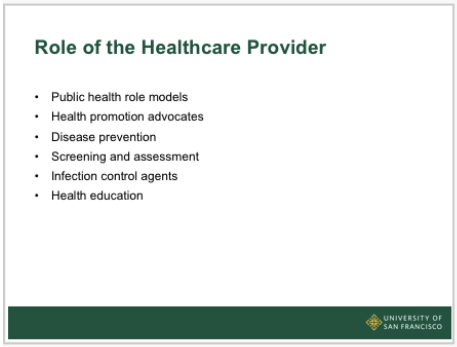

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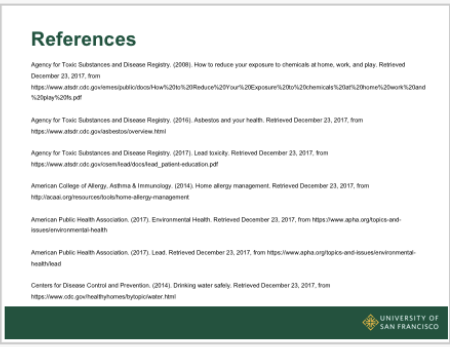

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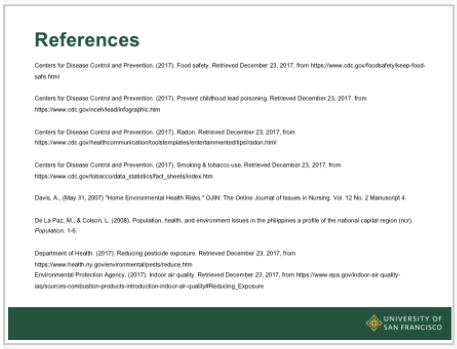

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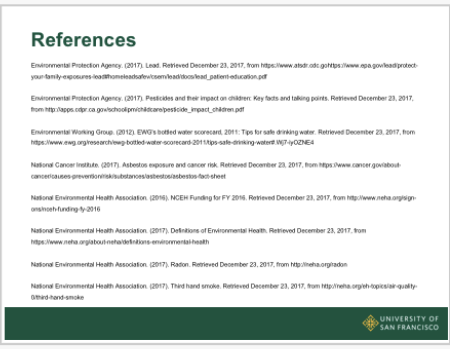

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Appendix E: Permission to Use Tool

From: "Davis, Allison"
Subject: Re: Home Environmental Health and Safety Assessment Tool
Date: October 5, 2017 at 1:57:34 PM PDT
To: Vinai Decena

Hi Vinai
Good to hear! yes, no problem!
Dr Davis

From: Vinai Decena
Sent: Thursday, October 5, 2017 12:43 PM
To:
Subject: Home Environmental Health and Safety Assessment Tool

Hi Dr. Davis,

I am currently a doctorate student at the University of San Francisco. I am working on completing my DNP project on educating healthcare providers in Stanislaus County, California on environmental health risk. If possible could I get your permission to translate your Home Environmental Health and Safety Assessment Tool into another language. My DNP project is focused on the Asian American Islander population. I would be translating the screening tool in Lao, Punjabi, and Tagalog.

Regards,

Vinai Decena RN, MSN, CNL, PHN

Appendix F: Environmental Health and Safety Assessment Tool (EHSAT)

Site_____
Date_____
RN _____

Home Environmental Health and Safety Assessment Tool

	Assessment	Yes	No	N/A	Standard of Practice
	Home built before 1978	O	O	O	☐ Test homes built before 1978 for lead.
	Home tested for lead	O	O	O	☐ Maintain home to prevent chipping or peeling paint
	Living space in basement	O	O	O	
	Attached garage	O	O	O	☐ Remove shoes indoors
	Home radon test	O	O	O	☐ Test first three floors of all homes for radon
	Home radon ventilation system	O	O	O	
	Living space in basement	O	O	O	☐ Do not idle car in garage
	Combustion heating source	O	O	O	☐ Ensure proper venting of all combustion heating sources.
	Gas, kerosene or propane space heater	O	O	O	☐ Annual assessment to ensure proper function.
	Wood stove	O	O	O	
	Fireplace	O	O	O	☐ Do not use grills, or generators indoors
	Gas dryer	O	O	O	☐ Gas dryers, hot water heaters and stove need to vent outdoors
	Vented	O	O	O	
	Gas hot water heater	O	O	O	
	Vented	O	O	O	
	Gas stove	O	O	O	
	Well water	O	O	O	☐ Routine well testing and maintenance of private wells.
	Lead pipes	O	O	O	
	Water tested for contaminants	O	O	O	☐ Review consumer confidence reports for public water supply
	Known contaminants:	O	O	O	
	Smoke detector	O	O	O	☐ Smoke detector on all floors and in bedrooms
	Carbon monoxide detector	O	O	O	
	Fire extinguisher	O	O	O	☐ Carbon monoxide detector on all levels in homes with combustion source or garage
	Fire evacuation route	O	O	O	
	Emergency phone numbers	O	O	O	
	Disaster plan	O	O	O	
	Shelter –in-place supplies	O	O	O	

Appendix F: Environmental Health and Safety Assessment Tool (EHSAT) (cont.)

	Assessment	Yes	No	N/A	Standard of Practice
	Insects in home	O	O	O	☐ Use of integrated pest management techniques for controlling pests. ☐ Use least hazardous methods of pest control
	Rodents in home	O	O	O	
	If yes what: _____				
	Pesticide spraying in home	O	O	O	
	If yes what / how often:_____				
	Pesticide contract	O	O	O	
	Frequency:_____				
	Air freshener used in home	O	O	O	☐ Minimize use of air fresheners. Use less hazardous and irritating alternatives to control odors. ☐ Use of low VOC household cleaners and green cleaning techniques.
	Candles	O	O	O	
	Plug-ins	O	O	O	
	Incense	O	O	O	
	How many times per day:	O	O	O	
	Use of strong smelling cleaners	O	O	O	
	Tuna fish served in home	O	O	O	☐ See federal and state recommended fish consumption advisories ☐ Wash all fruits and vegetables before eating ☐ Consider organic or locally grown products
	If yes, how often per week:_____				
	Fresh fruit/vegetables used	O	O	O	
	Local/ organic products used	O	O	O	
	Mercury thermometer in house	O	O	O	☐ Use non-mercury containing medical devices ☐ Dispose of all mercury devices and batteries per local hazard waste collection procedures
	Other mercury devices	O	O	O	
	Needle boxes for needles	O	O	O	
	Use of traditional or cultural remedies containing mercury	O	O	O	
	Smoking allowed in home	O	O	O	☐ Institute no smoking indoors policy
	House smells like smoke	O	O	O	
	Cigarette products present	O	O	O	

Appendix G: Tagalog Environmental Health and Safety Assessment Tool (TEHSAT)

Site_____
Date_____
RN _____

Paraan para Suriin ang Kalusugan at Kaligtasan ng Kabahayan

	Paraan ng Pagsusuri	Oo	Hindi	N/A	Pamantayan
	Bahay itinayo bago ang taong1978	O	O	O	• Suriin ang bahay na itinayo bago ang taong 1978 para sa lead
	Bahay nasuri para sa materyal na Lead	O	O	O	• Panatiliin ang bahay para maiwasan ang pagtanggal ng pintura
	Mayroong tirahan sa ilalim ng bahay (basement)	O	O	O	
	Mayroong garahe sa bahay	O	O	O	
	Mayroong instrumento para suriin ang materyal na Radon sa bahay	O	O	O	• Tanggalin ang sapatos pagpasok ng bahay • Suriin ang unang tatlong palapag ng bahay para sa materyal na Radon
	Bentilasyon sa bahay para sa materyal na Radon	O	O	O	• Huwag iwan nakaandar ang kotse sa garahe
	Mayroong kagamitan na pinagmumulan ng init at apoy	O	O	O	• Panatiliin ang maayos na bentilasyon ng mga pinagmumulan ng init at apoy sa bahay • Taunang pagsusuri ng kagamitan na pinagmumulan ng init at apoy para masigurado ang maayos na operasyon
	Gas, kerosene o heater na gamit ang kerosene	O	O	O	
	Kalan na gamit ang kahoy	O	O	O	• Huwag gumamit ng ihawan at generator sa loob ng bahay
	Tsiminea	O	O	O	
	Gas dryer	O	O	O	• Kailangan mayroong bentilasyon papalabas sa bahay sa mga gamit tulad ng Gas dryers, pampainit ng tubig at kalan
	Bentilasyon para sa Gas dryer	O	O	O	
	Gas hot water heater	O	O	O	

Appendix G: Tagalog Environmental Health and Safety Assessment Tool (cont.)

	Bentilasyon para sa heater	O	O	O	
	Gas stove	O	O	O	
	Tubig mula sa balon	O	O	O	• Madalas na inspeksyon ng balon • Pagsusuri ng mga ulat at balita tungkol sa pinagmumulan ng tubig
	Tubo gawa sa materyal na Lead	O	O	O	
	Nasuri para sa mga bagay na nagpapaparuming tubig	O	O	O	
	Kilalang dulot ng dumi sa tubig:	O	O	O	
	Smoke detektor	O	O	O	• Smoke detektor sa lahat ng kwarto at palapag ng bahay • Carbon monoxide detektor sa lahat ng palapag ng bahay na maaring pagmulan ng sunog at sa garahe ng bahay
	Carbon monoxide detektor	O	O	O	
	Fire extinguisher (maliban sa tubig)	O	O	O	
	Maasahan na daan papalabas ng bahay sa panahon ng sunog	O	O	O	
	Lista ng mga numero na matatawagan sa panahon ng kalamidad	O	O	O	
	Plano sa paghahanda sa panahon ng kalamidad	O	O	O	
	Emergency Supply para sa panahon ng kalamidad	O	O	O	
	Insekto sa loog ng bahay	O	O	O	• Paggamit ng iba't ibang paraan na pagpatay ng peste sa loob ng bahay
	Peste sa loob ng bahay	O	O	O	
	Ilista ang mga peste sab bahay kung mayroon:				
	Pesticide spray sa bahay	O	O	O	• Paggamit ng mga pampatay ng peste na mayroong pinakakaunting laman ng na bahay na peligroso sa tao
	Ilista ang mga pesticide spray sa bahay at kung gano kadalas mag spray:	O	O	O	
	Mayroong air freshener sa bahay	O	O	O	• Bawasan ang pagamit ng air fresheners. Gumamit ng mga air freshener na hindi gaano katapang at makakairita sa katawan • Gumamit ng mga panlinis ng bahay na mababa ang dami ng VOC
	Kandila	O	O	O	
	Di kuryente na air reshener	O	O	O	
	Ilang beses sa isang araw gumagamit ng air freshener				
	Gumagamit ng matatapang na amoy na panlinis sa bahay	O	O	O	
	Kumakain ng isdang tuna	O	O	O	• Alamin ang mga payo ng FDA tungkol sa

Appendix G: Tagalog Environmental Health and Safety Assessment Tool (cont.)

	sa bahay				pagkain ng mga isda
	Kung oo, ilagay kung gaano kadalas:				• Ugaliing hugasan ang prutas at gulay bago kainin • Subukang bumili ng mga local pagkain
	Kumakain ng sariwang prutas at gulay sa bahay	O	O	O	
	Lokal at hindi imported ang kinakain sa bahay	O	O	O	
	Mercury thermometer sa bahay	O	O	O	• Iwasan ang paggamit ng bagay na may laman na mercury • Itapon sa tamang paraan ang mga gamit na may laman na mercury tulad ng baterya ayon sa rekomendasyon ng DENR
	Ibang gamit na mayroong mercury	O	O	O	
	Kahon para sa karayom	O	O	O	
	Gumagamit ng tradisyonal na medisina na mayroong mercury	O	O	O	
	Pinahihintulutan manigarilyo sa loob ng bahay	O	O	O	• Ipagbawal ang paninigarilyo sa loob ng bahay
	Amoy sigarilyo sa loob ng bahay	O	O	O	
	Mayroong sigarilyo sa loob ng bahay	O	O	O	

Appendix H: Letter of Support from Agency

University of San Francisco
School of Nursing and Health Professions
2130 Fulton Street,
San Francisco, CA 94117

To Whom It May Concern:

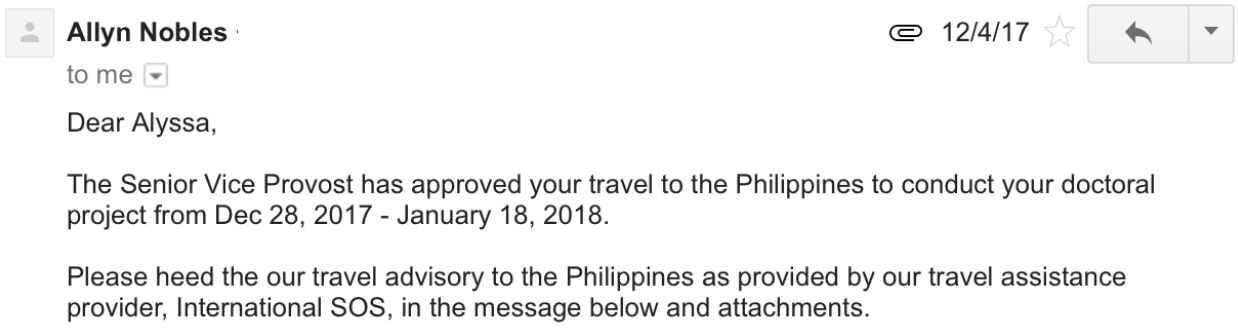
Alyssa Samson has received permission and support to conduct her DNP project at Lyceum Northwestern University College of Nursing at Dagupan City, Pangasinan, Philippines. She will be working directly with the nursing students and the Dean of the College of Nursing throughout the course of her project.

Thank you.

Sincerely,

Manuel
Judith Manuel, RN, MAN, Ed.D.
Dean, College of Nursing

Appendix I: Permission to Travel



Allyn Nobles 12/4/17

to me

Dear Alyssa,

The Senior Vice Provost has approved your travel to the Philippines to conduct your doctoral project from Dec 28, 2017 - January 18, 2018.

Please heed the our travel advisory to the Philippines as provided by our travel assistance provider, International SOS, in the message below and attachments.

Appendix J: Communication Matrix

Information	Audience	When	Method of Communication
Project Coordination and Planning	DNP chair Onsite project manager	Weekly-Bi-weekly	Email/Meeting/Phone/Zoom
Project Status	DNP chair Onsite project manager	Weekly-Bi-weekly	Email/Meeting
Project Changes	DNP chair Onsite project manager	As needed	Email
Milestone report	DNP committee	Monthly	Email/Meeting
Variances/Problem resolution	DNP chair Onsite project manager	As needed	Email/Meeting

Appendix K: Project GANTT

Project GANTT												
	2017					2018						
Task/Description	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Initiation												
Complete literature review												
Gap analysis												
Form DNP committee												
Submit Statement of Non-Research Determination												
Planning												
Develop project plan												
Present project to stakeholders												
Develop educational materials and resources												
Implementation												
Educational Phase 1 – PowerPoint Presentation												
Educational Phase 2 – Simulation												
Educational Phase 3 – Debriefing												
Delivery of screening into practice phase												
Evaluation												
Analyze questionnaire and survey results												
Dissemination												
Complete written DNP project												
Prepare and deliver presentation to USF faculty												

Appendix L: SWOT Analysis

Strengths	Weaknesses
• Support of national vision and strategic priorities for the collaboration of WHO with the Philippines • Support of stakeholders • Increased culturally sensitive knowledge among the medical staff and patients • Culturally diverse project manager, speaks the language and is adept to the environment • Readily available EBP tool	• Limited time • Limited resources • Limited budget • Lack of direct access to clinical sites and providers
Opportunities	**Threats**
• Increasing culturally sensitive care • Decreased morbidity/mortality • Promoting health education, preventing disease, and raising awareness • Updating curriculum for nursing students in the Philippines	• Traveling issues of the project manager to project site • Lack of support from stakeholders • Lack of participants • Misconceptions/misunderstanding of toolkit • Language/cultural barriers

Appendix M: Cost Benefit Analysis

Expenses				
Direct Expenses				
		Quantity	**Unit Cost**	**Total Cost**
Resources				
	Educational Material (i.e. handouts, surveys, folders, writing instruments)	25 people	$4	$100
Travel				
	Airfare	1 person	$1,200	$1,200
	Taxi	3 days	$40	$120
Food				
	In-service refreshments	2 days	$100	$200
Indirect Expenses				
Unanticipated Events				$500
Time				
	Project Manager	135 hours	$45	$6,075
TOTAL DIRECT EXPENSES				**$1,620**
TOTAL INDIRECT EXPENSEs				**$6,575**
DIRECT + INDIRECT EXPENSE TOTAL				**$8,195**

Cost Benefit Calculations

- Hospital Cost (Primary Outpatient Visit by Hospital Level) = $14.63 (WHO, 2005)
- Cost of asthma per case = $141/visit (Tsilaajav, 2009)
- Average asthma cases per month = 67 (Tsilaajav, 2009)
- Average asthma cases per year = 67 x 12 = 804 asthma cases/year
- $141 (cost of asthma for 1 person) x 804 (average asthma cases/year) = $113,364
- Projected project cost (1 visit) = $2,660
- Projected project cost for 1 year (2 visits) = $5,320
- Estimated goal for year 1 of project initiation = Decrease primary outpatient hospital visits related to asthma by 25% ($113,364 x 0.25 = $28,341)

Cost Benefit Ratio	
Projected Costs for Primary Outpatient Hospital Visit Related to Asthma in one year	$28,341
Projected Costs for Project x2 sessions/year	$16,390
$28,341 / $16,390	**=1.7**

Appendix N: Pre-Test/Post-Test Questionnaire

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1. **True or False – In the Philippines, 1 in 4 deaths are attributed to air pollution**
   A. True
   B. False

2. **Exposure to _____ can lead to adverse health effects.**
   A. First hand smoking
   B. Second hand smoking
   C. Third hand smoking
   D. Answers A & B
   E. Answers A, B, & C

3. **Homes built before the year _____ should be tested for lead**
   A. 1958
   B. 1968
   C. 1978
   D. 1988

4. **All of the following statements regarding asbestos are true *except***
   A. Construction workers are at high risk for exposure to asbestos
   B. People can only be exposed to asbestos through inhalation
   C. Drinking water may contain asbestos
   D. Asbestos can cause anemia

5. **All of the following are considered indoor allergens, *except***
   A. Dust mites
   B. Mold
   C. Pollen
   D. Answers A & B
   E. Answers A, B, & C

Appendix O: Case Study

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Case Study

You are checking in Jason, an 11-year-old boy into the clinic. He is accompanied by his mother, who is concerned about his health. His mother states that she has asthma, and she thinks his symptoms might be associated with asthma also. She has noticed that Jason is starting to get short of breath with activity. Jason states that the last time he played basketball with his friends, he had to stop multiple times to try and catch his breath. This is unusual for him, as he is able to play long hours outside without any problems.

Upon collection of health history from Jason and his mother, you are able to gather the following information:

-Family lives in house handed down by grandparents in Metro Manila

Mother
-Hotel housekeeper
-History of asthma, anemia

Father
-Smoker 30 pk/year
-Owns and manages parking lot for jeepney drivers
-History of hypertension

Child #1 Boy 11 y/o
-Will start high school this coming school year
-History of eczema

-Child #2 Girl 4 y/o
-Healthy

Case Study Questions

1. With the information you collect above, what are you concerned about?

2. What other questions might you ask Jason and his mother?

3. How would you educate Jason and his mother?

Appendix P: Post Simulation Survey

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POST SIMULATION SURVEY

What was your overall opinion of this case study simulation (please circle one)

5- Excellent 4- Very Good 3- Good 2- Fair 1- Poor

Please rate the following by circling the number that corresponds to the scale below.

5- Strongly Agree **4**- Agree **3**- Neutral **2**- Disagree **1**- Strongly Disagree

I clearly understood the purpose and objectives of the case study exercise	**5 4 3 2 1**
The scenario presented a real-life situation	**5 4 3 2 1**
I was able to incorporate what I learned into the case study exercise	**5 4 3 2 1**
The toolkit was easy to use and understand	**5 4 3 2 1**
I learned a lot from this case study	**5 4 3 2 1**
This case study helped me identify my strengths and weaknesses	**5 4 3 2 1**
I feel comfortable educating my patients and/or colleagues on the hazardous effects of environmental exposures to human health	**5 4 3 2 1**

Appendix Q: Post-Educational Workshop Survey

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1) What was your overall opinion of this educational session (please circle one)

5- Excellent 4- Very Good 3- Good 2- Fair 1- Poor

Educational Objectives: Please rate the following by circling the number that corresponds to the scale below.

5- Extremely Likely **4**- Likely **3**- Neutral **2**- Unlikely **1**- Extremely Unlikely

2) After the educational session and case study simulation, I am able to do the following:

-Identify potential sources of hazardous exposure in the home and environment **5 4 3 2 1**

-Identify the links between toxic exposure and adverse health effects **5 4 3 2 1**

-Educate patients and/or colleagues on environmental risks and exposures **5 4 3 2 1**

3) What did you like most about this educational workshop? _____

_____

4) What did you like least about this educational workshop? _____

_____

5) Do you have any specific suggestions as to how the educational workshop might be improved? _____

_____

6) I felt the content was: (please circle one)

Too Advanced Advanced Just Right Basic Too Basic

7) Was the information/material presented free from commercial bias? (please circle one)

Yes **No** **If no, please explain** _____

Appendix R: Tool Usability Survey

Feedback of Usability Survey

Environmental Health and Safety Assessment Toolkit

1. What type of setting do you work in?

2. How many times did you use or reference the toolkit?

3. The toolkit was easy to use and understand

Disagree Undecided Agree

4. The toolkit served as a guide during my patient assessments

Disagree Undecided Agree

5. I feel comfortable providing patient education regarding environmental health risk

Not comfortable Somewhat comfortable Very comfortable

6. I will likely use or reference the toolkit again during my clinical practice

Not likely Somewhat likely Very likely

7. What did you like most about the toolkit?

8. What did you like least about the toolkit?

9. Do you have any specific suggestions as to how the toolkit might be improved?

Appendix S: DNP Statement of Non-Research Determination

Student Name: Alyssa Samson

Title of Project: Implementation of a Culturally Sensitive Environmental Health Risk Assessment Toolkit

Brief Description of Project: The purpose of this project is to increase the knowledge pertaining to environmental health risks with respect to the Filipino population at a nursing school in the Philippines. This can be done by providing education and training to nursing students to implement environmental health screening for their patients.

A) Aim Statement: By January 2018, Lyceum Northwestern University College of Nursing will implement the use of an environmental health risk assessment for the provision of culturally sensitive care and education to the Filipino community through their nursing students.

B) Description of Intervention: The project manager will conduct a three-part educational training session. The first part includes a preliminary presentation on environmental health and the use of the screening toolkit. The second part will be held for the purpose of simulation. The third part is for debriefing and discussion. Following the educational sessions, the project manager will provide the nursing students on-site with all the necessary resources required to implement the toolkit into clinical practice. Eight weeks post implementation, the project manager will communicate with the local project manager to collect the data and feedback regarding the usability and feasibility of the toolkit by means of surveys and questionnaires.

C) How will this intervention change practice?

This intervention will supply healthcare providers with a culturally sensitive toolkit that will help facilitate risk management and communication. It will also increase education and awareness to people belonging to the community in question, which is important for the prevention of disease and the improvement in the quality of life.

D) Outcome measurements: (1) To increase awareness of environmental health risks to 100% of nursing students in the local region, as evidenced by their personal readiness survey scores that state they are either “likely” or “extremely likely” to identify hazardous exposures in the home and environment that can lead to adverse health effects. (2) To increase the nursing students’ personal knowledge related to environmental health risks, trends, screening tools, and current research, as evidenced by a minimum score of 80% on the post-test. (3) To prepare 100% of the participating nursing students to screen patients for environmental health risks using the TEHSAT tool, as evidence by their personal readiness survey score that shows their likeliness to use the tool and provide patient education during practice.

Appendix S: DNP Statement of Non-Research Determination (cont.)

To qualify as an evidence-based change in practice project, rather than a research project, the criteria outlined in federal guidelines will be used: (http://answers.hhs.gov/ohrp/categories/1569)

☐ This project meets the guidelines for an evidence-based change in practice project as outlined in the Project Checklist (attached). Student may proceed with implementation.

☐ This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

Instructions: Answer YES or NO to each of the following statements:

Project Title:	**YES**	**NO**
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	X	
The specific aim is to improve performance on a specific service or program and **is a part of usual care**. ALL participants will receive standard of care.	X	
The project is **NOT** designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does **NOT** follow a protocol that overrides clinical decision-making.	X	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	X	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	X	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	X	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	X	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., **not** a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	X	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: *"This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."*	X	

Appendix S (cont.)

ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print): Alyssa Samson

Signature of Student: _____ DATE__11/27/2017__

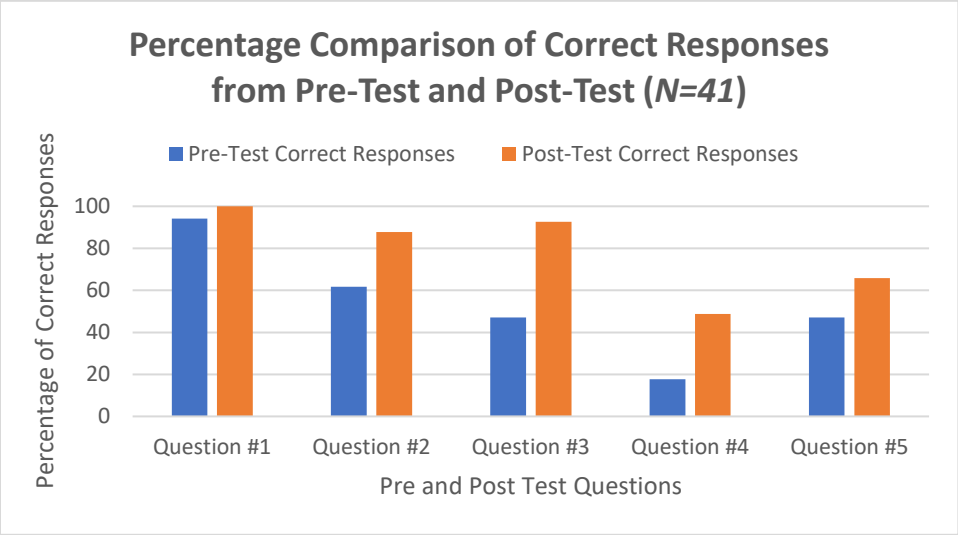
SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):
___Prabjot (Jodie) Sandhu, DNP, FNP-C, PA-C, CNL _____

Signature of Supervising Faculty Member (Chair):

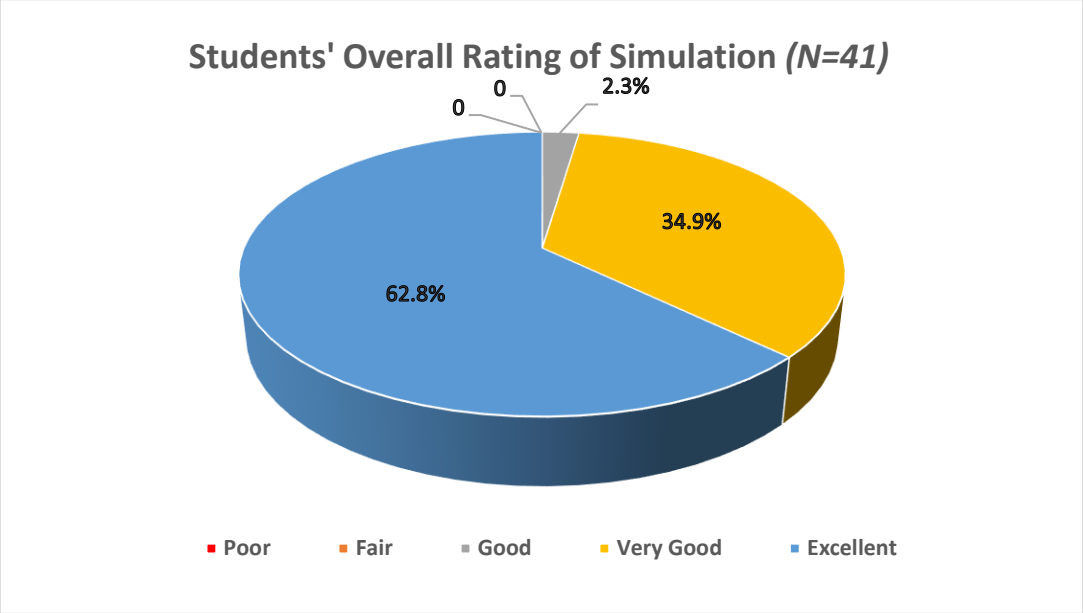
_____P.Sandhu**_____ DATE**__11/27/2017_____

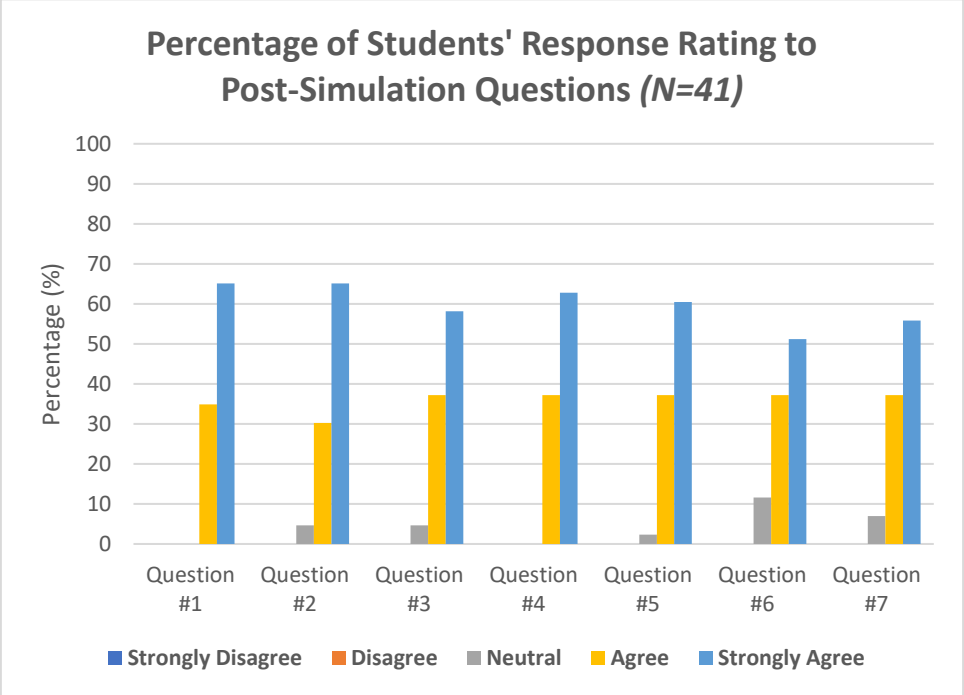
Appendix T: Pre-Test/Post-Test Results

Pre-Test Question Number	Percentage of Pre-Test Correct Responses	Percentage of Post-Test Correct Responses
Question #1	94.12	100.00
Question #2	61.76	87.80
Question #3	47.06	92.68
Question #4	17.65	48.78
Question #5	47.06	65.85

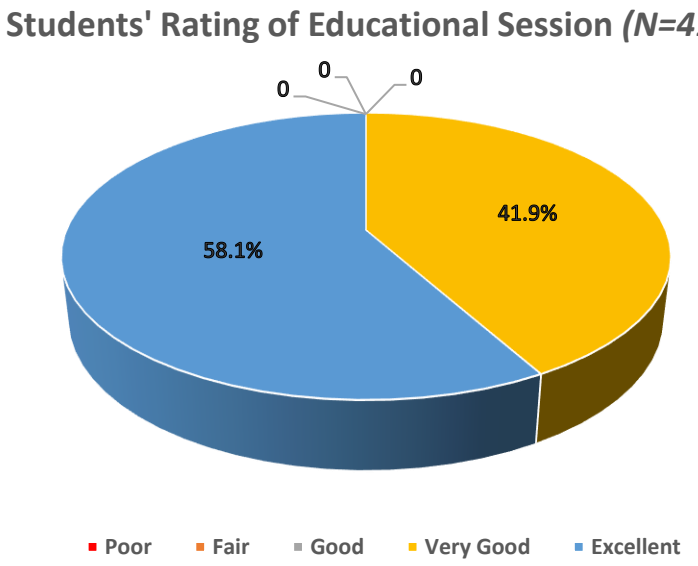


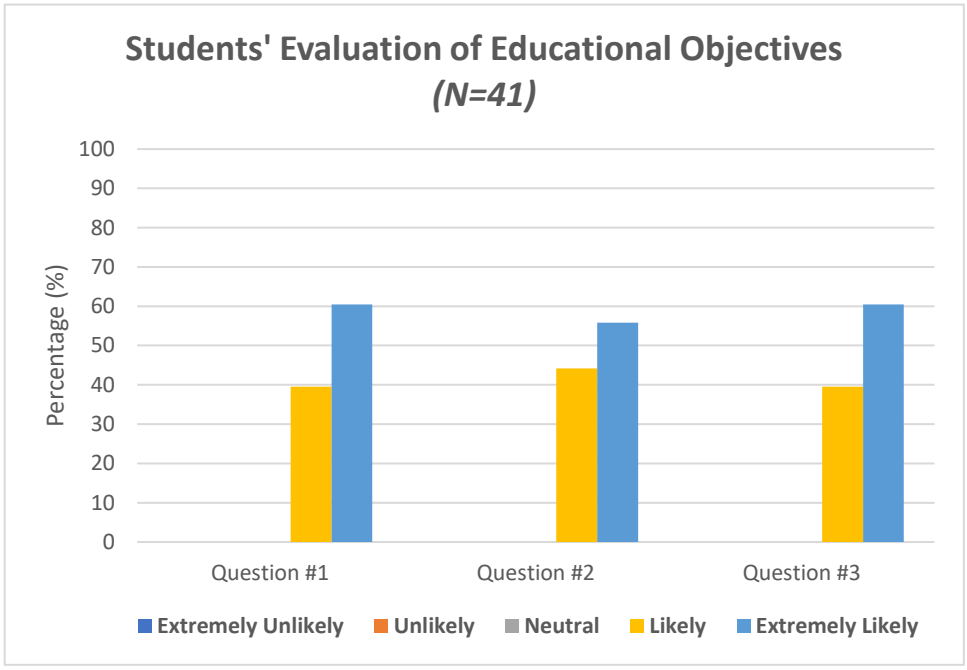
Appendix U: Post-Simulation Survey Results



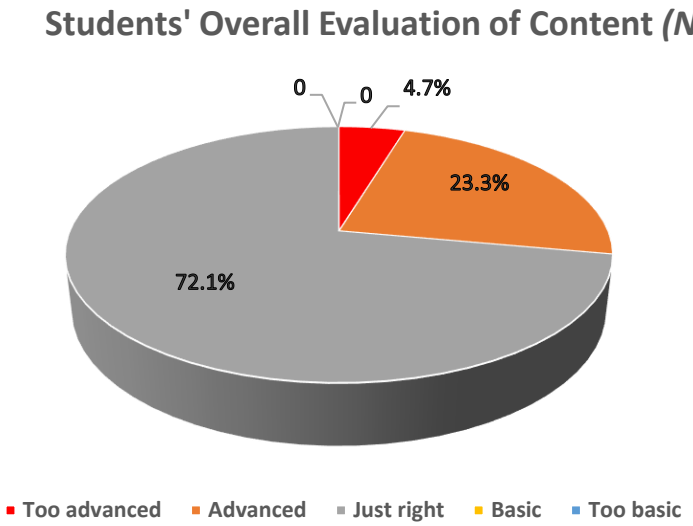


Appendix V: Post-Educational Workshop Survey Results

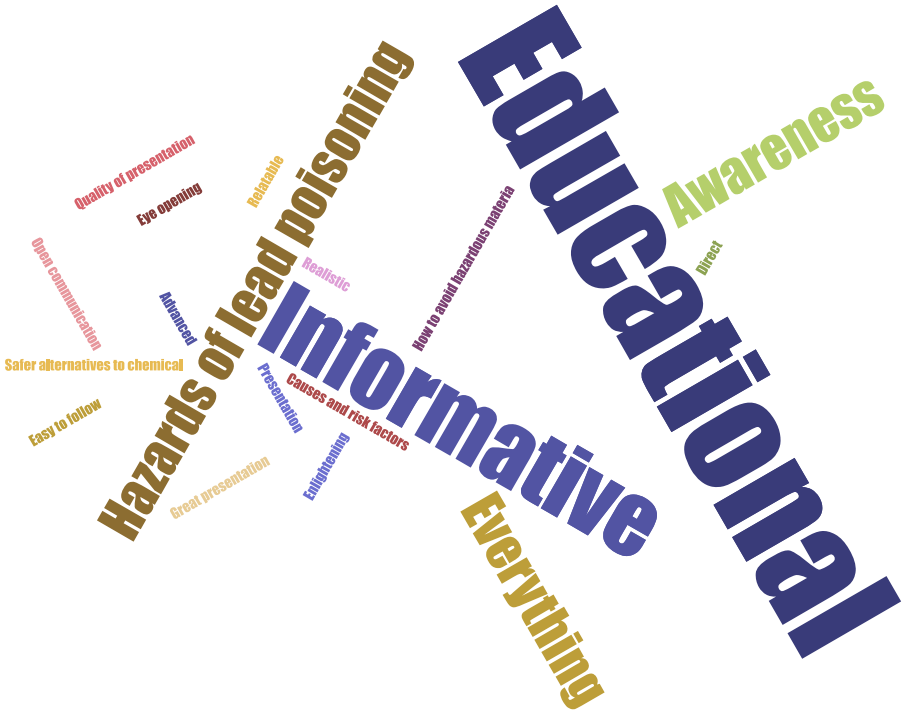




Appendix V: Post-Educational Workshop Survey Results (cont.)

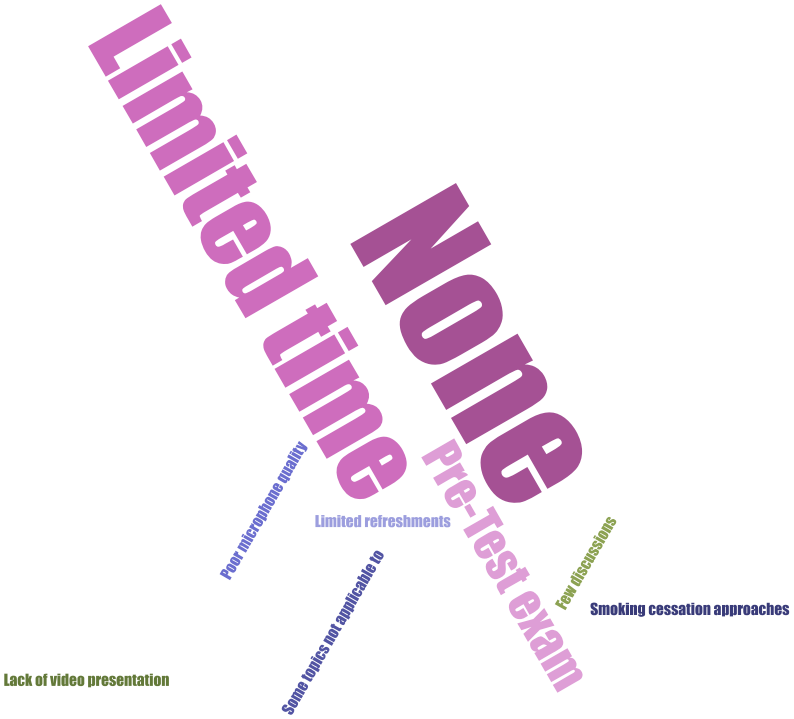


Word Cloud #1: What did you like most about this educational workshop?

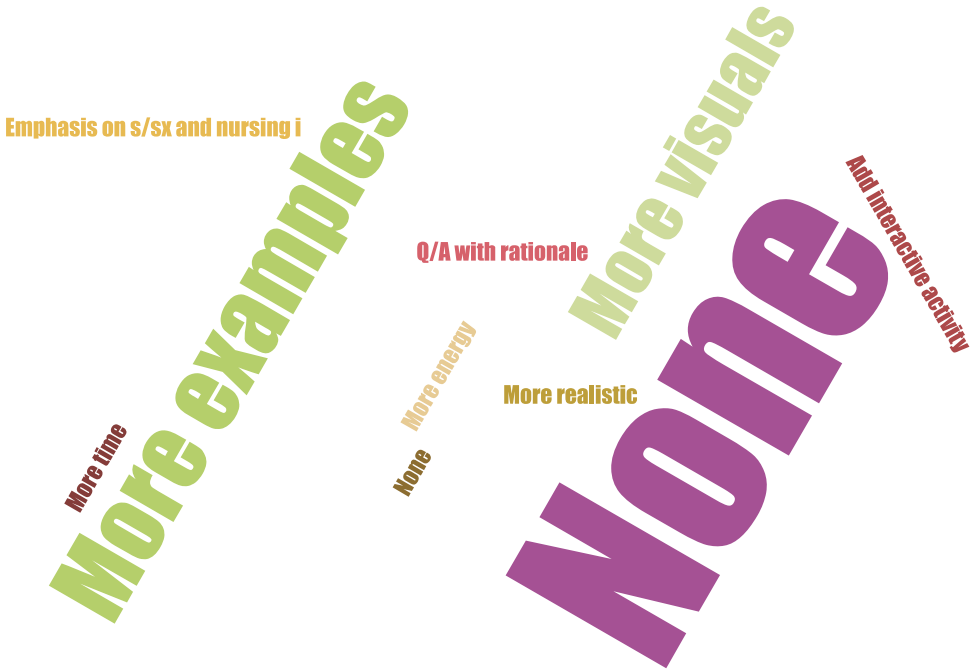


Appendix V: Post-Educational Workshop Survey Results (cont.)

Word Cloud #2: What did you like least about this educational workshop?



Word Cloud #3: Do you have any specific suggestions as to how the educational workshop can be improved?



Appendix W: Tool Usability Survey Results