Title: Beyond Silos: An Interprofessional, Campus-Wide Ethics Education Program

Presenters:
Cathy L. Rozmus, PhD[1]
Nathan Steven Carlin, PhD, MDiv[2]
Angela M. Polczynski, MBA[2]
Lorraine Frazier, PhD[3]
(1)School of Nursing, The University of Texas Health Science Center at Houston, Houston, TX, USA
(2)McGovern Center for Humanities & Ethics, McGovern Medical School, The University of Texas Health Science Center at Houston, Houston, TX, USA
(3)School of Nursing, University of Texas Health Science Center at Houston School of Nursing, Houston, TX, USA

Purpose: Ethics education is essential to the education of all health care professionals (Kurtz & Starbird, 2016). Improvements in technology have led to new issues and dilemmas that previously existed only in science fiction films including end-of-life decision-making and genomic health care. Nurses are daily facing issues regarding conflict over end-of-life care, allocation of scarce resources, patient privacy versus the benefits to another, and the use of genetics in prevention and treatment of diseases. While health care professions have attempted to educate students in their profession about ethics and ethical decision-making, few institutions have attempted an interprofessional approach to teaching ethics across the campus. The majority of those that have done so have only evaluated knowledge gains instead of application of ethical decision-making skills (Beigy et al., 2016; Caldicott & Braun, 2011; Kurtz & Starbird, 2016; de la Garza, Phuoc, Throneberry, Blumenthal-Barby, McCullough, & Coverdale, 2016; Rozmus & Carlin, 2013; Watts, Medeiros, Mulhearn, Steele, Connelly & Mumford, 2016). The purpose of this study was to evaluate an interprofessional approach to ethics education to all students across an academic health science center. The specific aims were to (1) compare student perception of ethics education before and after the implementation of the campus wide ethics program; and (2) determine changes in student ethical decision-making skills following implementation of a campus wide ethics program.

Methods: This study was a quasi-experimental design with seniors graduating prior to the intervention serving as the control group. The setting was a comprehensive health science center in the southwestern United States with a student population of 4,800 students in six schools including a medical school, school of dentistry, school of public health, school of nursing, school of biomedical informatics, and graduate school of biomedical sciences. The university is located in a large urban medical center. Institutional Review Board approval was obtained prior to any data collection.

All students enrolled in the university participated in the intervention. However, samples of graduating students were used for evaluation of the intervention. A total of 437 students from the six schools participated in the evaluation survey prior to the intervention, 288 participated in the survey in the third year of the intervention and 251 participated in the survey in the fifth year of the intervention for a total sample size of 976 students for the evaluation. The total number of student participants is estimated at 18,000.

The intervention consisted of a campus wide series of activities including faculty development across all six schools and the creation of faculty resources. All incoming students in the university completed an introductory ethics module that has been previously reported (Rozmus, Carlin, Polczynski, Spike, & Buday, 2015) Additional interventions included "just-in-time" research ethics modules, online courses, ethics simulations, interprofessional ethics case studies, interprofessional grand rounds and an interprofessional ethics and history course. Activities included both face-to-face activities and online activities.

Evaluation consisted of an online survey with two parts. The first section asked students for their self-assessment of their ethics education including the amount of time on ethics during course instruction and practical training. They were asked to evaluate their comfort level in identifying and solving ethical issues. The second section asked them to identify an ethical issue or dilemma, outline options of addressing the issue, describe their personal action to resolve the issue, and state professional values relevant to the situation. Answers to the second section were evaluated using the Health Professional Ethics Rubric (Carlin et al., 2011). Answers to the open ended questions were rated as 1=insufficient response, 2= acceptable response and a score of 3= proficient response. Interrater reliability was calculated for all raters in all three time periods and was above .90.

Results: A total of 976 students from the six schools completed the questionnaire. There were 96 respondents from the Graduate School of Biomedical Sciences, 148 from the Medical School, 42 from the School of Biomedical Informatics, 139 from the School of Dentistry, 175 from the School of Nursing, and 278 from the School of Public Health. Ninety-eight of the students did not identify their school. Despite efforts to increase ethics in the curricula, students' perception of the time spent on the content in course instruction decreased from baseline to the 5th year survey ($p<.05$). There was no difference reported in students' overall comfort level with their abilities to deal with ethical issues. Student ethical decision making skills were higher at the three year evaluation (range 1.23-1.97) for all indicators ($p<.05$) except for identifying options to address the issue. For the 5th year surveys, responses were higher for all four indicators (identifying an ethical issue, identifying options of addressing the issue, identifying their personal action to resolve the issue and identifying professional values relevant to the situation) between the pre-intervention assessment (range 1.13-1.39) and the 5th year evaluation (range 1.35-2.01) ($p<.01$) and between the 5th year evaluation and the 3rd year evaluation ($p<.05$).

Conclusion: After participation in an interprofessional campus-wide effort on health professions ethics, students demonstrated higher ethical decision-making scores according to the Health Professional Ethics Rubric. However, their scores still did not reach the proficiency level identified in the rubric. Examination of the effectiveness of each part of the intervention is needed to determine what is most helpful in enhancing students' ethical decision-making skills.

For example, 100% of students in the interprofessional ethics and history course were able to score proficient using the rubric on a course assignment similar to the questionnaire used in the program evaluation.

Students had the most difficulty relating the options for addressing the issue to professional values or an ethical framework. This item most likely indicates the highest level of critical thinking. The other three items only require self-awareness of issues and option to address the issue while thinking through the options from an ethical framework requires a more objective and critical review of the situation and options.

Barriers to interprofessional education were similar to pervious reports-- students were on different schedules and in different locations. Online courses appeared to be the most effective in reducing these barriers. One advantage to the online format is that students don't necessarily know the profession of the students they are interacting with in the discussion, thus eliminating some of the biases of professional stereotyping.

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