

The aim of this section is to expand and accelerate advances in methods of teaching bioethics.

Lessons Learned in Developing and Testing a Methotrexate Case Study for Pharmacy Education

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Abstract: This article describes the development, implementation, and evaluation of a complex methotrexate ethics case used in teaching a Pharmacy Law and Ethics course. Qualitative analysis of student reflective writings provided useful insight into the students' experience and comfort level with the final ethics case in the course. These data demonstrate a greater student appreciation of different perspectives, the potential for conflict in communicating about such cases, and the importance of patient autonomy. Faculty lessons learned are also described, facilitating adoption of this methotrexate ethics case by other healthcare profession educators.

Keywords: pharmacy education; methotrexate; pharmacy ethics case study

Introduction

The Accreditation Council for Pharmacy Education (ACPE) guidelines expect that pharmacy students learn to address ethical dilemmas and critically evaluate viable options in the context of the needs of patients and other key stakeholders.¹ To satisfy this expectation and prepare pharmacy students to be 'practice ready,' many pharmacy curricula include ethics coursework using case-based learning activities. Although there are several pharmacy ethics textbooks available to educators,² for over fifteen years, faculty at the University of Washington (UW) have developed pharmacy specific ethics cases for use in the classroom. These cases have helped students develop a framework for ethical decisionmaking. As Marcus

Henning, et al. indicate, there is sufficient literature addressing students' ethical frames of reference, including research on using case scenarios, to garner students' responses as to how they approach ethical dilemmas.³

One case the UW developed, the 'methotrexate ethics case,' focuses on a health system pharmacist who was part of a team utilizing methotrexate to treat a patient with an ectopic pregnancy. Five years ago a health sciences student raised this issue with faculty teaching the UW Pharmacy Law and Ethics course after encountering this issue in her health system practice. Over the next five years, the case scenario was refined, clinical faculty were invited to contribute their expertise to the discussion, specific perspectives of other involved individuals

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were required, and a student reflective exercise was added. The reflective writings are what spurred the authors to write this article because the student pieces were particularly insightful and thoughtful. The methotrexate ethics case resonated with the pharmacy students, often moving them outside of their comfort zone and helping them consider perspectives different from their own.

This article contributes to the ethics education discussion of pedagogy and teaching practices by detailing the development of the methotrexate ethics case and analyzing the students' post-course reflective exercises. The authors have observed that pharmacy students, and other students in the healthcare professions, often struggle when first exposed to ethics cases. Students tend to be more comfortable with clinical scenarios than with ethical scenarios. The methotrexate ethics case may help dissipate student tension with ethics cases, further preparing them for pharmacy practice. The paper concludes with faculty observations and recommendations related to use of the methotrexate ethics case in the classroom.

The Methotrexate Ethics Case

The methotrexate ethics case is part of a required Pharmacy Law and Ethics course for second year Doctor of Pharmacy students at the University of Washington.⁴ The faculty for this course come from different disciplines, including pharmacy and health law, bringing a strong interdisciplinary approach to teaching the course. In this 2-quarter course, students learn the basic legal framework governing pharmacy practice as well as the fundamentals of ethics case analysis. The class learns and applies a normative ethics format for analyzing ethics cases. The key components of this framework are: autonomy, beneficence, justice, nonmaleficence, and virtue.

At the beginning of the two-quarter course, students are assigned to one of sixteen groups. Small groups were used to reduce some of the challenges posed by large classes of over 100 students as well as to facilitate intra-professional team experiences to complement pharmacy students' participation on inter-professional teams elsewhere in the pharmacy curricula. These student teams were intentionally created to be representative of different backgrounds in pharmacy (hospital, ambulatory, previous pharmacy technician experience). Each group was comprised of seven members who worked together to analyze ethics cases throughout the two quarters. Ethics case discussions occurred in a classroom, designed to facilitate active learning.⁵

The methotrexate ethics case was the final case in a six-case series discussed during the two-quarter course. For the first five ethics cases,⁶ student small groups selected two cases to prepare for presentation to the entire class. Student small groups also selected the perspective from which they would analyze the ethics case, such as the healthcare provider or the patient. In class, two groups were randomly selected to present one of their prepared cases to the class, after which the discussion was opened up to the full class. For the methotrexate case, the format was modified to include expanded clinical background and information, an assigned perspective, and a reflective writing assignment. Learning activities related to the ethics case occurred in three categories: pre-class preparation, in-class discussions, and post-class reflections.

Pre-class Preparation

Students were assigned background reading on ectopic pregnancy, including diagnosis and management,⁷ ethical

Box 1. KP's Case

Case: KP is a 37-year-old Caucasian woman who arrives at the emergency room accompanied by her husband. Both are concerned about her pregnancy. Two weeks ago, KP took a home pregnancy test two days after a missed period and the test was positive. Both she and her husband are very excited to have their first child. KP is experiencing vaginal bleeding as well as pelvic and shoulder pain that seems to be getting worse over the last few days. She also feels more fatigued and short of breath when doing even basic tasks such as walking to the mailbox or climbing the stairs. A transvaginal ultrasound is performed and is nondiagnostic for a gestational sac indicative of a normal intrauterine pregnancy. Serum levels of beta human chorionic gonadotropin hormone (β -hCG), used to confirm or rule out pregnancy, is 1000 mIU/mL; suggestive of an ectopic pregnancy.

She seems stable but because of the pain, vaginal bleeding and question of ectopic pregnancy, she is admitted. Her β -hCG 48 hours later is 1002 mIU/mL. The transvaginal ultrasound at that time is negative. Her pain and vaginal bleeding have continued. The doctor advises that he thinks she has an ectopic pregnancy and that he recommends using methotrexate. He tells her that there is a very small chance that he could be wrong and that if he is and she actually has a viable intrauterine pregnancy, because of the methotrexate, the baby will have very serious malformations. But it is highly unlikely. He also tells her that there is another treatment option that involves surgical removal of the fallopian tube. It is effective, but will decrease her ability to get pregnant by natural means. He also states that they could watch and wait to see if it becomes clearer after a couple more days, but he thinks this would be very dangerous. She is concerned the medication will terminate her pregnancy, something she does not want. She states she is a devout Catholic and her religion is opposed to any direct attack on the growing child that constitutes an abortion. Her husband pulls you aside and expresses his concern for his wife's health. He wants to have more children and wishes for his wife to remain as fertile and reproductively healthy as possible.

and legal issues,⁸ frequently asked questions,⁹ and a Catholic perspective.¹⁰ A Catholic perspective was chosen because many of the health systems in Washington State are affiliated with the Catholic Church. These writings were selected to provide students with sufficient foundational knowledge that they could apply to the methotrexate ethics case scenario. Students were also provided with the scenario so they could prepare for the in-class discussion. (See **Box 1** for the methotrexate ethics case scenario) As provided to the students, the objectives for the methotrexate ethics case were: (1) To complete an ethics review of an ectopic pregnancy case from the perspective of the mother, fetus, father, pharmacist, and physician; and, (2) To participate in a controversial and emotional ethics case discussion in a professional, non-judgmental manner.

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In-class Activities

The methotrexate ethics case had two separate in-class activities. Our educational assistants, third-year pharmacy students gaining teaching and leadership experience, led the first in-class presentation. After consulting a faculty expert on drug impacts during pregnancy, the educational assistants provided a clinical overview, and a primer on legal issues related to methotrexate treatment of ectopic pregnancies. This in-class discussion helped to orient the students to the issues they would encounter the following week when they discussed the methotrexate ethics case scenario.

The second in-class discussion focused on the methotrexate ethics case

Lesson Learned

scenario. Unlike our previous ethics case discussions in which student groups selected their perspective, here each group was assigned a different perspective. The perspectives included mother, fetus, husband, provider and pharmacist. After discussing their assigned scenario within each group, the groups explained their perspective to the class.

Post-class Reflective Writings

Reflective writings may be used throughout the pharmacy curriculum, including the didactic, experiential, and service learning components.^{11,12,13} Immediately following the classroom discussion, students were assigned a reflections exercise to complete individually. Two questions were posed to the students in this assignment:

1. Which aspect of today's activity did you find most challenging?
2. How will you apply the lessons learned today to your future practice?

Ninety-seven of the 106 students enrolled in the course submitted their responses. After grades were submitted and the course ended, the authors submitted their study proposal to the UW Human Subjects Division and received a determination that the study qualified for an exemption from Institutional Review Board approval. Following deidentification of the student submissions, the authors examined the reflective writings using qualitative content analysis^{14,15} in order to discover more about the students' experience with the methotrexate ethics case.

Student Reflective Writing Analysis

The authors closely read all of the 2017/18 submissions, identifying the primary topics raised by the students.

During the iterative reviewing process, the thematic codes began to emerge. After another reading, the authors met to finalize the coding methodology and draft a codebook. All authors applied the codebook to a small number of sample reflections, and met to finalize the codebook. The researchers then independently reviewed approximately one-third of the reflections at a time. The research team met weekly to compare coding results and resolve any coding discrepancies. This iterative process was used to review all of the data.

Five major themes emerged from the student reflective writings. Individual responses were coded under multiple themes where applicable. Although two questions were posed to students, their responses were coded together. The themes, with the frequency each theme was coded, are: perspective (75 percent), conflict (54 percent), decisionmaking (36 percent), communication (24 percent), and instructional components (14 percent). Very few students submitted a reflective writing that did not meet any coding criteria and were nonresponsive to the assignment (0.5 percent). Each theme had two or three subthemes.

The perspective theme included the students' reflections addressing various viewpoints and approaches to the ethical dilemma. The subthemes of perspective were recognition of own beliefs and training biases, being required to take a perspective different than would have self-chosen, and realizing the need for an open mind. The subtheme of recognition of own beliefs and training biases included acknowledging the difficulty of not imposing one's own biases into a given scenario, and being cognizant of one's biases. For example, students wrote:

"The aspect of today's activity I found the most challenging was trying not to place my own biases onto the situation."
(Reflective response 39)

"As a future health professional, I would like to acknowledge and accept the fact that everyone comes from a different perspective. I would also like to set aside my personal beliefs and offer patients only my professional opinion and expertise needed to facilitate an informed healthcare decision." (Reflective response 14)

The subtheme of being required to take a perspective different than would have self-chosen included taking the fetus' perspective rather than the pharmacist's, and realizing that there may be multiple perspectives for a scenario beyond simply the provider and the patient. For example, students wrote:

"Taking the perspective on an individual with whom I did not agree with about their beliefs was difficult. It was also difficult to imagine the perspectives of individuals we are not used to seeing, such as the fetus." (Reflective response 29)

"I also realized that there are many more perspectives to consider than just the provider and the patient." (Reflective response 43)

The subtheme of recognizing the need for an open mind included was demonstrated by:

"Trying to look at the case from a viewpoint that I do not personally agree with was challenging. You have to think about how that person would view the situation and all the positives and negatives that come with it." (Reflective response 31)

"I will use the lessons I learned today to be more open minded to other people's beliefs. I will not assume that everyone feels the same way about every scenario." (Reflective response 5)

The conflict theme captured instances of tension between parties or between ideological frameworks. The subthemes of conflict include: conflict between patient and provider, conflict

between science and religion, and conflict between patients and their relatives. Many of the examples of conflict between patient and provider suggested that the two parties had substantially different beliefs. For example:

"[The patient] is someone with differing worldviews than mine." (Reflective response 47)

"[The] patient's beliefs differ from mine." (Reflective response 34)

The subtheme of conflict between science and religion was also depicted in terms of stark contrast. For example, students reflected:

"Understand[ing] the perspectives of each individual was [the] most challenging. Especially the mother's perspective, because she must choose between her life and her religious beliefs." (Reflective response 59)

"In this case, the mother's religious beliefs presented a barrier to her understanding, so it may be helpful to counsel her in a religious framework, or find a different healthcare professional who can." (Reflective response 12)

The third subtheme of conflict depicted tension between patients and relatives. Here, students wrote:

"I found it challenging to balance my clinical judgments based on my knowledge and patients' preferences regarding their personal beliefs. And the situation could become more complicated when there is discordance between patients themselves and their relatives." (Reflective response 96)

"In future practice, it will also be important to understand that the issue may be important to other parties besides myself and my patient. In this example, it seemed that the husband had strong feelings as well – which will be very relevant in real life situations with families." (Reflective response 3)

Lesson Learned

The theme of decisionmaking included the patient decisionmaking process and the need to respect patient autonomy as well as the provider decisionmaking process. There were two subthemes of decisionmaking, respecting patient autonomy and the provider decisionmaking process. Students reflecting on the importance of patient autonomy wrote:

"I understand that as a healthcare provider, the choice ultimately belongs to the patient, it is difficult when as a provider you want to do the least amount of harm to the patient." (Reflective response 20)

"However, if the patient decides not to follow my medical advice, I will respect that decision, as it is ultimately up to the patient." (Reflective response 7)

Examples of the provider decisionmaking process subtheme included:

"Sometimes, it is challenging to find a good balance between our clinical judgment and respecting patient's personal belief to provide the best possible care outcome that can satisfy both provider and patient." (Reflective response 17)

"I will consider the patients' values and what they consider to be important when I have a decision to make on beginning of life." (Reflective response 51)

Communication was another significant theme for the students. This theme contained all types of communication, whether it was between students completing the assignment, or in the role of addressing the dilemma from a member of the healthcare team, or the need to practice and demonstrate communication skills such as listening and explaining in a clinical situation. The three subthemes were student team discussions, case discussions with healthcare team and other decisionmakers, and listening and explaining. Examples of

student reflections on their own team discussions included:

"The most challenging part of the activity was to come to a consensus within our group." (Reflective response 101)

"Overall, I learned that it is important to remain professional and respectful of all perspectives and opinions when discussing controversial topics." (Reflective response 4)

The subtheme of communicating within the confines of a case discussion among healthcare team members and other decisionmakers, was demonstrated by reflective writings such as:

"It was also challenging to realize that the physician didn't do a good job of explaining the situation to the family which could impact their ability to make an informed decision." (Reflective response 58)

"I also realized the significance of efficient communications between health care providers and patients to maximize the clinical benefits that fit patients' interests best." (Reflective response 96)

The third communication subtheme highlighted two specific communication skills, listening and explaining. Examples of this subtheme include:

"This situation essentially becomes a negotiation, and I have to help educate the patient..." (Reflective response 83)

"I can address miscommunication and misunderstandings in my future practice by fostering open communication and using open-ended questions to explore the different views that individuals have." (Reflective response 93)

The final theme that emerged from the student reflective writings was one addressing the instructional component of the methotrexate class activity. Specifically, this theme included the subthemes of the method of instruction,

such as time and in-class presentation, and gaining clinical knowledge. Examples of the method of instruction subtheme include:

"I also felt the discussion portion of today's activity felt rushed and there was not adequate time to really process the different opinions for various perspectives for a more fruitful conversation." (Reflective response 43)

"I found the lecture [first in-class discussion] very helpful." (Reflective response 66)

The gaining clinical knowledge subtheme was demonstrated in student writings such as:

"I found understanding the clinical scenario of our methotrexate conversation very difficult to understand." (Reflective response 95)

"I am also much more aware of the treatment of an ectopic pregnancy, which will be useful." (Reflective response 30)

Discussion

Overall, the students appeared to learn significantly from this methotrexate ethics case. Students were more engaged in the methotrexate ethics case discussion than earlier course ethics case discussions where faculty observed that their discomfort with ethics was more demonstrable. Students demonstrated variation in levels of engagement and feelings of challenge depending in large part on their assigned perspective. In earlier case discussions when student groups choose the perspective from which they analyzed the case, the emphasis was on picking a perspective and maintaining that perspective throughout the analysis. Often, student groups chose the perspective that simplified the analysis, or was a perspective that was familiar to

them such as the pharmacist perspective. Assigning perspectives, and including perspectives that the student groups had not encountered before, such as the father and the fetus, was a powerful educational tool that challenged and expanded the students' understanding of key perspectives. The student reflective writings demonstrated considerable concern over analyzing the case from the fetus' perspective, but this concern was also evident for the mother and father's perspectives. This class exercise proved very useful in facilitating student development in recognizing the breadth of perspectives that can be relevant in a contentious ethical scenario.

This expansion of students' understanding of other stakeholders' roles in ethics cases continued beyond perspectives. Specifically, students realized that ethics cases, such as the methotrexate ethics case, could create conflict at many levels, including between patient and provider, science and religion, and intra-family relationships. Additionally, students perceived a need for greater professionalism and tact in communicating with colleagues, patients, and other healthcare providers. Students also demonstrated a struggle with patient autonomous decisionmaking when it conflicted with what the student thought the patient should decide. This case created a learning environment and experience for students mimicking some of the issues they will later encounter as practicing pharmacists.

Student's reflective writings also highlighted several instructional components that faculty can use to further modify the methotrexate ethics case. Students indicated that the class exercise felt rushed, without sufficient time to fully explore the case nuances. The clinical component of the case was reported to be beneficial to some students, but difficult to understand for other students. This response

suggests that ethics cases are ripe for partnering with clinical experts to facilitate student knowledge of both ethics and clinical knowledge, and potential intersection between the two. The inclusion of greater clinical context to the ethics case, in terms of materials, an educational assistant-led discussion, and facilitation by a clinical faculty expert appeared to help bridge the gap between definitive clinical information and amorphous ethics cases.

Finally, faculty also learned from using the methotrexate ethics case in the classroom. First, providing educational assistants the opportunity to present clinical, legal, and ethical, primer instruction to the class permits the class to learn from third-year students that participated in the methotrexate ethics case the previous year. These third-year students bring their own perspective of the class exercise that can help second-year students prepare and participate more fully. Second, structuring the syllabus to permit additional time for the methotrexate ethics case discussion would be beneficial. Additional time was needed for the students to debrief and reflect as a group on their experiences. Third, assigning specific perspectives to student groups for this exercise created enhanced engagement with the classroom activity and challenged students that may otherwise have approached the case from a formulaic, rote perspective. In future years, faculty anticipate assigning perspectives earlier in the series of ethics case discussions. And, fourth, expanding the ethics materials to include a discussion of fetal rights. Students were overwhelmingly flummoxed by a consideration of the fetal perspective in the methotrexate ethics case.

Conclusion

This article details the development, implementation, and evaluation of a

methotrexate ethics case for pharmacy students that may be adopted by other educators. Qualitative analysis of the students' reflective writings provides useful insight into the students' experience and comfort level with this final ethics case in a two-quarter course. Specifically, student writings demonstrate a greater understanding of different perspectives, the potential for conflict in communicating about such cases, and the importance of patient autonomy. This methotrexate case was highly successful in our curriculum, and we encourage the adoption of it elsewhere, particularly in pharmacy curricula and related health sciences disciplines.

Notes

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