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We can recognize that to err is human, yet it may cost us great things, such as our jobs, licenses, and peace of mind. In nursing, 40% percent of the time is spent administering medication (Wolters Kluwer, 2022, p.15-17), which puts nurses and nursing students at an increased rate of making medication administration errors (MAE). The National Coordinating Council for Medication Error Reporting and Prevention (NCCERP,2023) says medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer." Such events may be related to professional practice, health care products, procedures, and systems, including prescribing, order communication, product labeling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use" (NCCERP, 2023). The FDA receives 100,000 reports of medication error suspicions yearly (FDA, 2019). Medication error consequences include adverse reactions that may lead to disability and even death.

In this paper, I will examine the effects of the fatal medication error in the RaDonda Vaught case and the perceptions of nursing students at Western Michigan University. I will focus on the medication process: prescribing, administering, dispensing, monitoring, and documenting. Medication errors can result from systematic, patient, doctor, and nurse factors (Unver et al., 2012). This paper will elaborate on the Just Culture model and its involvement. Results of the study illuminate consistent reports of fear that nursing students have if ever at risk of being criminally prosecuted for an event of a medication error.

Background

On December 24, 2017, 75-year-old Charlene Murphey was admitted to Vanderbilt University Medical Center with a subdural hematoma. Two days later, Murphey's condition had improved, and she was prescribed a sedating drug, Versed, to allow her to be still during a final PET scan before release. RaDonda Vaught, a registered nurse with seven years of experience at the hospital, was ordered to administer the sedative. Vaught attempted to withdraw the sedative from an automated medication dispensing cabinet by keying "VE" into the search function. Vaught used an override code to manually withdraw the medication when this failed. Unfortunately, Vaught mistakenly withdrew vecuronium, a paralyzing drug, the administration of which led to the death of Charlene Murphy. Vaught admitted her error to Vanderbilt administrators, explaining that she was distracted by a trainee and had been complacent. In the following month, Vaught was fired. Vaught was arrested and charged with reckless homicide and impaired adult abuse. She was convicted of criminally negligent homicide and abuse of an impaired adult, and the Tennessee State Board of Nursing revoked her license. Although guilty of severe charges, Vaught was sentenced to three years of probation, and she will likely never be a nurse again.

Medication Process

Serious medication effects and even death occur because of error in the medication process. The medication process includes prescribing, administering, dispensing, monitoring, and documenting (Tariq RA et al., 2023). An error in one of these steps can cause a fatality, like the death of Charlene Murphy. Reports from the Centers for Medicare & Medicaid Services (CMS) show evidence that Vaught committed errors in the prescribing, dispensing, and monitoring drugs given to her patient. (DHHS, CMS,2018, November 16).

Prescription

Vaught did not find Versed (Midazolam) in the Accudose medication dispensing system. Versed was ordered but could only be found by the brand name. At this point, Vaught should've contacted the pharmacy. Instead, she typed "VE" and chose the first medication, Vecuronium. Because this medication was not ordered, the system required an override. Overriding of medication without order is only permitted during STAT situations (ISMP, 2019). This was not a STAT situation.

Administration

Vaught failed to verify the right drug. Subsequently, she also withdrew the wrong dose. She reconstituted the vial and gave one milligram (DHHS, CMS,2018, November 16).
If Vaught consciously or subconsciously thought she was giving Versed, her nursing knowledge should have signaled this medication did not need reconstitution. CMS reports show pictures of the vial cap saying "Warning: paralyzing agent"(DHHS, CMS,2018, November 16). The red cap should have signaled Vaught to double-check the medication.

Documenting and Monitoring

After administering the medication through intravenous bolus injection, Vaught left the patient in the PET scan and proceeded to her next task. Vaught verbally verified the patient's name but did not scan the medication into Murphey's chart. There were no scanners at the bedside for Vaught to use. Vaught failed to monitor the patient for adverse effects of Midazolam "Hypoventilation, airway obstruction, and apnea can lead to hypoxia and/or cardiac arrest unless effective countermeasures are taken immediately" (PDR, 2023). Additionally, CMS's investigation revealed that the hospital did not have a detailed policy on the frequency of monitoring patients during and after drug administration (DHHS, CMS,2018, November 16).

Just Culture Model

The model was created to encourage people to report mistakes to examine precursors to errors rather than punish the individual. The model stems from malfunctions in the aviation industry (ANA, 2010). Therefore, systems can fix their issues and increase safety. By using the model, nurses can report errors without fear of retaliation, or so we thought. David Marx, the author of the model, speaks on this case and its relation to it. Based on the model's intention towards harm, he states that purpose, recklessness, and knowledge are not evident. Rather, at-risk behavior and human error can be applied. "At-risk behavior is the choice, but where the risk is not seen, or mistakenly believed to be justified" (Marx, 2019). Vaught administered the medication, not aware that it was the wrong one. Human errors are all the mistakes she made in the medication process. The just culture model advises the system to support and counsel the nurse and thereafter fix the problem. Vaught was neither guided nor supported but taken to the court of law because the people of Tennessee believe her actions were equivalent to that of the recklessness of a drunk driver. It is important to note that Vaught reported her error immediately after the event.

Methods

Letters from nurses and parties like the American Nurse Association (ANA) and Institute for Healthcare Improvement (IHI) were addressed to the Judge in support of RaDonda Vaught. These letters expressed concern about a further impact on the staffing issue nationwide "…it will drive healthcare providers out of the profession, exacerbating an already dire shortage in our communities, and discouraging the next generation of caregivers" (IHI, 2022). The study sought to understand the feelings and concerns of nursing students in the community.

Participants

Nursing students in this population range from their first semester to their final 6th semester of the program. Respondents are introduced to medication errors in their first semester, and their importance is continued to be stressed throughout the program. Each semester, except the first semester, respondents are enrolled in clinicals at medical facilities in their assigned rotation. The survey was sent to 247 nursing students enrolled in Western Michigan University's Bronson School of Nursing.

This study included a questionnaire about knowledge and awareness of the RaDonda Vaught Case and medication errors. The questionnaire includes a statement of consent to participate and permission to use the respondent's answers, demographic information, quantitative questions scored using a Likert scale, and one open-ended question seeking qualitative data on knowledge, feelings, and concerns about the effects of medication errors.

The Medication Errors: RaDonda Vaught survey was approved by the Western Michigan University Human Subjects Institution Review Boards. The 11-question survey was generated using Qualtrics software, version 2023. The survey link was emailed to the population, and an email reminder was sent two weeks later. The survey was open for a total of three weeks.

Questionnaire Design

A personal introduction along with project description was included before the statement where the respondent would consent to participate in the survey study. If respondents clicked "no" to the consent, the survey shut down and did not allow the user to continue.

A synopsis of the RaDonda Vaught case included the events leading up to the medication error and the events involving Vanderbilt Medical University Center, the Tennessee Board of Nursing, and the Tennessee State law. The synopsis allows the respondents to have a common understanding of the event if this was their first time hearing about the case.

The succeeding "yes or no" question seeks to understand if students were previously aware of the criminal charges against nurse Vaught before reading the synopsis. Using a scale ranging from strongly disagree to strongly agree; the survey questioned the respondents about their knowledge of medication errors in health care. Knowledge of the event and topic from outside sources could indicate the students' increased exposure and interest in this topic.

No demographic questions except academic standing was asked in this survey. This was intentionally done to limit the chance of uncovering who the respondent was. Identification of gender was not required due to the overwhelming female population in the program. A break in confidentially may have resulted if a respondent identified as male since there are only a selected few in each cohort.

The year and semester in which each student was enrolled allowed for understanding their familiarity with medication administration questions like "I feel confident when administering medication at a clinical setting," and "I feel the medication dispensing systems and policies at the institution where I do clinical are updated to ensure safe administration," seek data regarding their medication administration knowledge.

Nursing students were asked to answer "yes" or "no" if they had ever committed a medication error in a lab or clinical setting and if they held a position outside the University where medication administration was required. Not only does this information encourage introspective reflection, but it could also reveals quantitative information about medication error occurrences as student nurses.

The respondents are questioned about feelings of hesitation when reporting medication errors which leads to the question, "I feel concerned about being criminally prosecuted in the event of a medication error."

A final open-ended question encouraged students to express their concern about the effects of the RaDonda Vaught case in their future practice as registered nurses. This question box provided free space to describe feelings and thoughts as future nurses who could someday be put into similar circumstances as those of Radonda Vaught.

Results

Qualtrics software version January 2023 was used for data analysis. N=247 included Bronson School of Nursing students. A response rate ranged from 21% to 27% throughout the survey. Respondents were not forced to answer each question, which may result from the fluctuation.

From N=247, 66 gave consent to participate in the study. This resulted in a 27% response rate.

Academic standing in the program is shown in Table 1. A sample of 54 students was asked what year and semester they were in.

Table 1 WMU BSON Academic Standing

#	Answer	%	Count
1	2nd year, first semester	1.85%	1
2	2nd year, second semester	5.56%	3
3	3rd year, first semester	3.70%	2
4	3rd year, second semester	53.70%	29
5	4th year, first semester	22.22%	12
6	4th year, second semester	12.96%	7
	Total	100%	54

Of the respondents, 73.22% knew of the criminal charges against RaDonda Vaught. 62.26% feel they strongly agree with being knowledgeable about medication errors, 49.06% somewhat agree with feeling confident when administering medication in their clinical setting, and 42.28% somewhat agree that their institutions have updated policies that ensure safe administration. The response rate for all three of these questions was 21%. See Table 2.

Table 2 Assessment of medication administration error knowledge and confidence

#	Question	Strongly disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Strongly agree		Total
1	I am knowledgeable about medication errors in health care	5.66%	3	0.00%	0	1.89%	1	30.19%	16	62.26%	33	53
2	I feel confident when administering medication at a clinical setting	5.66%	3	3.77%	2	7.55%	4	49.06%	26	33.96%	18	53
3	I feel the medication dispensing systems and policies at the institution where I do clinical are updated to ensure safe administration	5.66%	3	9.43%	5	1.89%	1	45.28%	24	37.74%	20	53

The respondents show that 30% of them administer medication outside of the BSON as part of their job. In n=52, 40.38% said "yes" to making a medication error in lab practice or at a clinical site. 40% of respondents, n=51, felt that they somewhat agree to feel hesitant to self-report a medication error for fear of being criminally prosecuted after reading this case, and 14% strongly agree. 42% of n=52 feel that they somewhat agree, and 37% strongly agree of feeling concerned about being criminally prosecuted in the event of a medication error. See Table 3.

Table 3 Nursing students' perceptions of medication error reporting and criminal charges

#	Question	Strongly disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Strongly agree		Total
1	After reading this case, I feel more hesitant to self-report a medication error for fear of being criminally prosecuted	19.61%	10	7.84%	4	19.61%	10	39.22%	20	13.73%	7	51
2	I feel concerned about being criminally prosecuted in a event of a medication error	7.69%	4	3.85%	2	9.62%	5	42.31%	22	36.54%	19	52

There were 40 insightful responses to the open-ended question: How does the RaDonda Vaught case affect your career as a nursing student and future nurse? Thematic analysis was used to examine these responses. Themes of fear, hesitation, hyperawareness, technology, mistrust, and short staffing stood out as major concerns and feeling for nursing students as future professionals in the field.

Discussion

It is safe to say nursing students are aware and knowledgeable of medication errors and are aware of the charges against Vaught. Although, most of the students have received formal education on medication errors, completed a pharmacology course, and administered medication in and out of the nursing program, almost half agree to have made a mistake in the lab or clinical setting. Students feel hesitant to report future mistakes to hospital administration. Moreover, students are fearful of being taken to a court of law for any future mishap in the medication process.

Students feel that "nurses do not have much protection as other medical professionals like physicians, and nurses are personally liable." Because of the lack of support for nurses, students expressed fear of making a medication error and going to jail. This overpowering feeling instills hesitancy. Students do not feel comfortable administering medication.

Although fear and hesitancy have negative connotations, students were able to elaborate on the misfortunes of the case and how it births a new kind of hyperawareness when giving medication. Many students note that they will, "…double and triple check everything I do" when reviewing their medication rights. Some say they will "think extra hard and spend more time at the Pyxis" to ensure taking out the correct medication. Yes, students want to ensure the correct

drug to ensure the safety of their patients. They will also be extra careful because they do not trust hospital administrations to support them in the case of a similar event.

Conclusion

Following the Five Rights

First and foremost, it is important to prevent any medication administration error by following the seven rights of medication administration. Making sure there is an order or a medication unless it is an emergency is the first step when electing the correct drug for the right reason. Always verify the drug label with the order. Verify the right patient, time, dose, route, documentation, and response. We want to make sure our patient receives the proper treatment for the disease and ensure their safety. It will also eliminate the need to report any errors to hospital administrations.

Reporting

Perfect nursing practice is a goal we should all strive for, but we all make human errors or "drift," as described by David Marx. In other words, many factors like short-staffing, technology, distractions, and feeling overworked challenge the "perfect practice" idea (Marx, 2019). Instead, we should strive to decrease and control what we can.

Very similar to responses of mistrust in this survey, a cross-sectional survey study, Yousef et al. (2021) found that under-reporting of MAEs was a result of fear that the nursing administration would focus on the individual nurse as the primary cause instead of examining the precursors of the error, like in the just culture model. Reporting mistakes can be an intimidating process, but the nurse's responsibility is to self-report their MAEs. We must uphold honesty and continue to encourage patient safety.

Technology

Screens and machines only aid us in the delivery of healthcare. By no means can technology substitute a nurse's critical thinking, but it can make us aware of things that may not seem right. Always read the alerts before canceling or overriding, whether it is a medication dispensing system, infusion pump, or diagnostic machine. The checkpoints ensure we choose the proper treatment for our patients. Become aware of the "human drift" that can occur when factors like habit and distractions come into play. Make sure two registered nurses are present when overriding is necessary; the second nurse will be an extra set of eyes for an error we may miss. "The designers examine technology and use requirements but don't fully consider the larger system, which includes people such as the patient, nurse, physician, pharmacist, and other clinicians, as well as other technologies," says Harrington (2022). For example, a pharmacy technician can place the incorrect medication into a unit. So always ensure you read for the correct drug when taking it out of the cubby. If you are unsure of an order on the screen, verify with the provider or pharmacist. Wrong orders can be entered into the system.

Overall, current medical professionals have learned a lot from the events of this case, but nursing students have gained a unique perspective as the next generation of nurses. Nursing students, such as those in the Bronson School of Nursing, not only know the effects and prevention of medication errors, but they are also aware of outside factors contributing to events that were thought unimaginable. Fear and blame are present, but it has encouraged us to become further detail-oriented and safe when caring for our patients.

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