Improving Dose Calculation Pass Rates With Peer Tutoring

Dosage calculation skills are a necessary competency in nursing school and practice. A small calculation error can put a patient’s life at risk (Basak, Aslan, Unver, & Yildiz, 2016). In our baccalaureate program, junior-level students receive an online dosage calculation book several weeks prior to the first day of class. The dosage calculation standardized examination is administered within the first 2 weeks of school. Students are required to meet the school of nursing’s benchmark of 80% to administer medicines safely and effectively in the clinical environment. However, even with two attempts, the dosage calculation examination often has caused early failures within the nursing program. Three nursing faculty and a campus peer tutoring advisor conceived the idea of expanding the existing university-based peer tutoring program to include dosage calculation workshops. The workshops were sponsored by the university’s Office of Academic Support that offers free peer tutoring to undergraduate students and compensates tutors with minimum wage.

Peer tutoring is a type of instructional strategy in which students are taught by their peers who have previously been trained and supervised by the classroom teacher (Geddes, 2016). Peer tutoring involves pairing students to work together academically and offers individual instruction to students challenged in a particular subject. The use of peer tutoring is increasing because it is not only cost effective but also a valuable time saver for instructors. The individualized instruction is conducted in an environment with less pressure than the classroom. A peer tutor will often explain a concept to another student in a different way than the instructor, thereby clarifying the content. In addition to receiving the needed academic assistance, students report an increase in self-confidence. Students who need the support are the principal beneficiaries, but peer tutoring also has advantages for the tutor. Peer tutors indicate tutoring reinforces their own knowledge as they instruct (Geddes, 2016).

Based on the peer tutoring model, six upper level nursing students led three dosage calculation workshops for first-semester nursing students. Faculty recommended tutors based on high academics, friendliness, a positive attitude, and good communication skills. The tutors met with faculty prior to the workshop dates to solidify details and formatting for the workshops. Two optional evening workshops were held prior to the first dose calculation examination. On the basis of the suggestion of a tutor, incoming students were divided into two rooms based their chosen method of completing practice problems: dimensional analysis or basic equation. The tutors utilized a PowerPoint® presentation to present 20 practice problems. Individual tutoring was also offered to the students who attended the first two workshops. A third workshop was required for the students who did not meet the identified benchmark on the first dosage calculation examination attempt.

The first time pass rate for three previous cohorts without access to the workshops ranged from 83% to 88%. The workshops were implemented in the fall of 2017 and spring of 2018. These cohorts had a 95% and 94% first-attempt pass rate. In addition, all remaining students in both cohorts passed the examination on the second attempt. Each of the five cohorts consisted of 89 to 101 students.

First-semester nursing students voiced appreciation for the workshops, subsequent individual tutoring, and increased self-confidence prior the first dosage calculation examination. Students commented on the benefits of forming relationships with upper level nursing students. Tutors also reported increased efficiency in working problems and time management skills necessary with a part-time job. With nursing school enrollment increasing, it is important to develop strategies that enhance student support. The dosage calculation workshops have been a positive addition to our nursing curriculum.

References

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The authors have disclosed no potential conflicts of interest, financial or otherwise.
doi:10.3928/01484834-20190221-15