Nurses Use Math When Caring for Patients

Math skills and knowledge are used in nursing classes, at clinical sites, and when taking the NCLEX; however, many students don't realize how critical they are and how often they are used. According to Boyd (n.d.), “Nurses routinely use addition, fractions, ratios and algebraic equations each workday to deliver the right amount of medication to their patients or monitor changes in their health” (para. 1). Are you prepared to do so?

Along with using math for calculating correct medication dosages, nurses sometimes calculate a patient’s intake and output or the number of calories a patient has consumed in a day. Measurement conversions, IV drip rates, and drug titrations may also need to be determined, and they all need to be done correctly. Administering an incorrect amount of any drug may cause serious complications and can even be fatal. When someone’s life is in their hands, it’s critical that nurses compute drug dosages accurately.

Calculating measurement conversions is something that nurses must also do. Measurements are based on the metric system, so “to provide safe care, pounds must often be converted to kilograms, ounces to cubic centimeters, Fahrenheit to Celsius, and inches to centimeters” (Boyd, n.d., para. 3). Additionally, some medications are prepared through mixing or reconstitution before being administered, “so nurses must be able to calculate how much of each to mix in order to make the medication the correct strength” (Mahuron, n.d., para. 5).

Nurses are also involved in administering intravenous (IV) medication or solutions to patients. “Nurses need to know the amount of medication the patient is to receive, the overall time period for administering it, and how much medication will be given each hour. They use the information that is known to calculate the rest. Nurses generally calculate the flow rate or drip rate of the IV, determining the exact amount of medication the IV fluid should deliver to the patient during specified intervals” (Mahuron, n.d., para. 4). This is a critical skill.

To safely care for patients, nurses must know not only how to correctly calculate drug dosages, but be able to determine IV drip rates, and drug titrations; perform measurement conversions; and mix or reconstitute medications correctly. Doing so carefully and precisely will prevent unintentional medication errors and potentially a patient’s death.

Math Review Resources and Tutoring Can Help

There are many resources on the MTH101 page on the Course Help tab in the library to help you review the math necessary for safe patient care. These resources include games, quizzes, and practice test questions as well as basic information on decimals, rounding, military time, metric conversions, formulas for IV pump and gravity drip calculations, maintenance fluid rate calculations, epidemiological formulas, and other math-related content.

Math tutors are available on each campus and online to help as well. Check the Tutoring and Office Hours schedules on the Tutoring tab in the library for their availability.

It’s a good idea to refresh your memory before heading into a test or a clinical or work environment, and these resources can help you do so. Being able to correctly calculate drug dosages and closely monitor changes in a patient’s condition are critical skills for every nurse.

References
