Dosage Calculations Competency Policy
Undergraduate Studies, School of Nursing

Policy Statement
Dalhousie University nursing students will successfully complete a dosage calculations test with a minimum of 95% prior to administering medications to clients during each clinical course.

Preamble
The issue of numeracy competency and its relevance for patient safety within the context of medication calculations remains a significant source of debate (McMullan, Jones & Lea, 2011; Warburton, 2010; Wright, 2009, 2010). At the same time, it is important to note that up to 40% of nurses’ workload involves medication administration (Armitage & Knapman, 2003) with approximately 33% of medication administration errors attributable to incorrect dosage calculations (Hodge, 1999). Similarly, a study reviewing intravenous drug administration found administration errors in close to 50% of the doses (Taxis & Barber, 2003). Ensuring patient safety must include a variety of factors ranging from the larger healthcare system to context (e.g., unit level specific) as well as individual competency and perceived self-efficacy related to medication calculation (McMullan, Jones & Lea, 2011).

Requirements:
As nursing is a profession that is self-regulated, students have a responsibility to provide safe, effective, quality patient and family care delivery. Dalhousie University nursing
students will successfully complete a dosage calculations test with a minimum of 95% prior to administering medications during all clinical experiences to demonstrate competency with dosage calculations. The student will have a maximum of 2 supplemental dosage calculation test writings to meet the standard for medication calculation proficiency. If the student is unable to achieve 95% following the initial writing and the 2 subsequent supplemental test writings, this will be deemed unsatisfactory and the student will be unsuccessful for that clinical nursing course resulting in a failing grade. For those clinical courses that do not include medication administration, the course professor may develop alternative approaches for assessment in medication knowledge and/or dosage calculations.

In Nursing 2050, Pharmacology and Nursing, student nurses demonstrate dosage calculation proficiency. The literature identifies calculations proficiency as an ongoing area of concern for nurses and nursing students (Eastwood, Williams, Boyle, & Fairhall, 2011; McMullen, Jones & Lea, 2010). Integration of stages of instruction for student nurses to acquire this competency include addressing mathematical concepts, linking numeracy competency with meaning and context and teaching drug calculation formulae while providing practical calculation examples (Wright, 2005, 2009). This stage is provided for students in Nursing 2050: Pharmacology while practising the psychomotor skills required to safely administer medications is provided in Nursing 2200: Knowledge and Practice in Nursing II. The ability to perform drug dosage calculations correctly is required for safe nursing practice. It is a clinical course requirement that students demonstrate the ability to do these calculations accurately on a consistent basis. This
policy has been developed to provide ongoing opportunity and support for students to maintain dosage calculation proficiency.

Students will be reminded during orientation to each clinical rotation that successful completion of a medication dosage calculations test is required prior to administering medications during a clinical rotation. Successful completion is defined as achieving a score of 95% or more on a medication calculation test. At least 48 hours notice of the test date will be given. The clinical instructor will not assign students to administer medications prior to successful completion of the dosage calculations test.

If a student does not achieve 95% on the initial test writing, additional instruction will be given, opportunity for practice and a supplemental test opportunity will be provided within 7 days. If a student does not achieve 95% on the second test writing, additional instruction will be given, opportunity for practice and a final supplemental test opportunity will be provided within 7 days. If the student does not achieve 95% on the third test writing, this is identified as unsatisfactory in the clinical evaluation, resulting in a failure in the clinical nursing course as the student will be unable to meet the required clinical objective of safe medication administration.
References


