

ACKNOWLEDGEMENTS

The Nurses Board of Western Australia gratefully acknowledges the contribution of representatives of the health industry and the following Western Australian organisations in the preparation of these guidelines:

Central TAFE, Mt Lawley

Central West College of TAFE

Curtin University of Technology

Curtin University of Technology, VTEC, Kalgoorlie

Pilbara College of TAFE

South West Regional College of TAFE

West Coast College of TAFE, Joondalup

Fremantle Hospital and Health Services

Women's and Children's Health Service

Sir Charles Gairdner Hospital

Royal Perth Hospital

REFERENCES

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First Issued: March 2005 - Approved by Board: December 2004.

Nurses Board
of Western Australia



Guidelines for the Medication Calculation Components of Courses leading to Registration with the Nurses Board of Western Australia

PREAMBLE

The Nurses Board of Western Australia is established under the Nurses Act 1992 to protect the community of Western Australia through the regulation of nursing/midwifery practice. To this end the Board issues guidelines and position papers on a variety of nursing/midwifery practice and education issues.

INTRODUCTION AND PURPOSE

A sound understanding of the principles of safe medication administration is essential for all nurses and midwives involved in the delivery of health care. An integral part of safe medication administration is accurate calculation of the dosage. These guidelines were developed by an expert working party of nurse educators from both the tertiary education and hospital-based settings.

The purpose of the guidelines is to promote consistency in the medication calculation components of courses, leading to registration with the Nurses Board of Western Australia.

MEDICATION CALCULATION

The following mathematical principles and areas of dosage calculations are to be included in all nursing pre-registration and registration bridging courses.

MATHEMATICAL PRINCIPLES:

- Decimals
- Fractions
- Ratios and generation of dosage calculation formula
- Percentages (with fractions)
- Writing System International (SI) units (names and symbols of base units e.g. L = litre, g = gram)
- Converting SI measurement units
- Rounding dosages

AREAS OF DOSAGE CALCULATIONS:

- Oral drug dosages:
 - o Liquid
 - o Solid

- Injectable drug dosages:
 - o Liquid
 - o Solid
 - o Unit dosages
- Intravenous therapy:
 - o Flow rate drops per minute:
 - Macro drip
 - Macro drip with burette
 - Micro drip
 - o Flow rate millilitres (mls) per hour
 - o Time and volume
- Paediatric dosage calculations:
 - o Body weight
 - o BSA – Body Surface Area
 - o Age-related dose reduction

ASSESSMENTS

It is the Board's policy that all undergraduate nursing students should have achieved a score of 100% for medications calculations before being eligible for registration. Students therefore should be given the opportunity throughout the course to work towards achieving the necessary 100% on completion of the course.

The final assessment must be in the form of a closed book examination and include questions covering calculations listed in the areas of dosage calculations.

CALCULATORS

Students should be allowed to use non-programmable calculators, however they must show their workings and the steps they used to arrive at the result.

MIDWIFERY

Midwifery pre-registration and registration bridging course participants, who are already registered as nurses with the Board, will have their prior medication calculation learning recognised. However, it is expected that relevant medication calculations, including the calculation of formula milk feeds, will be covered.