

Improving undergraduate nursing students' drug calculation skills – A multi-modal approach

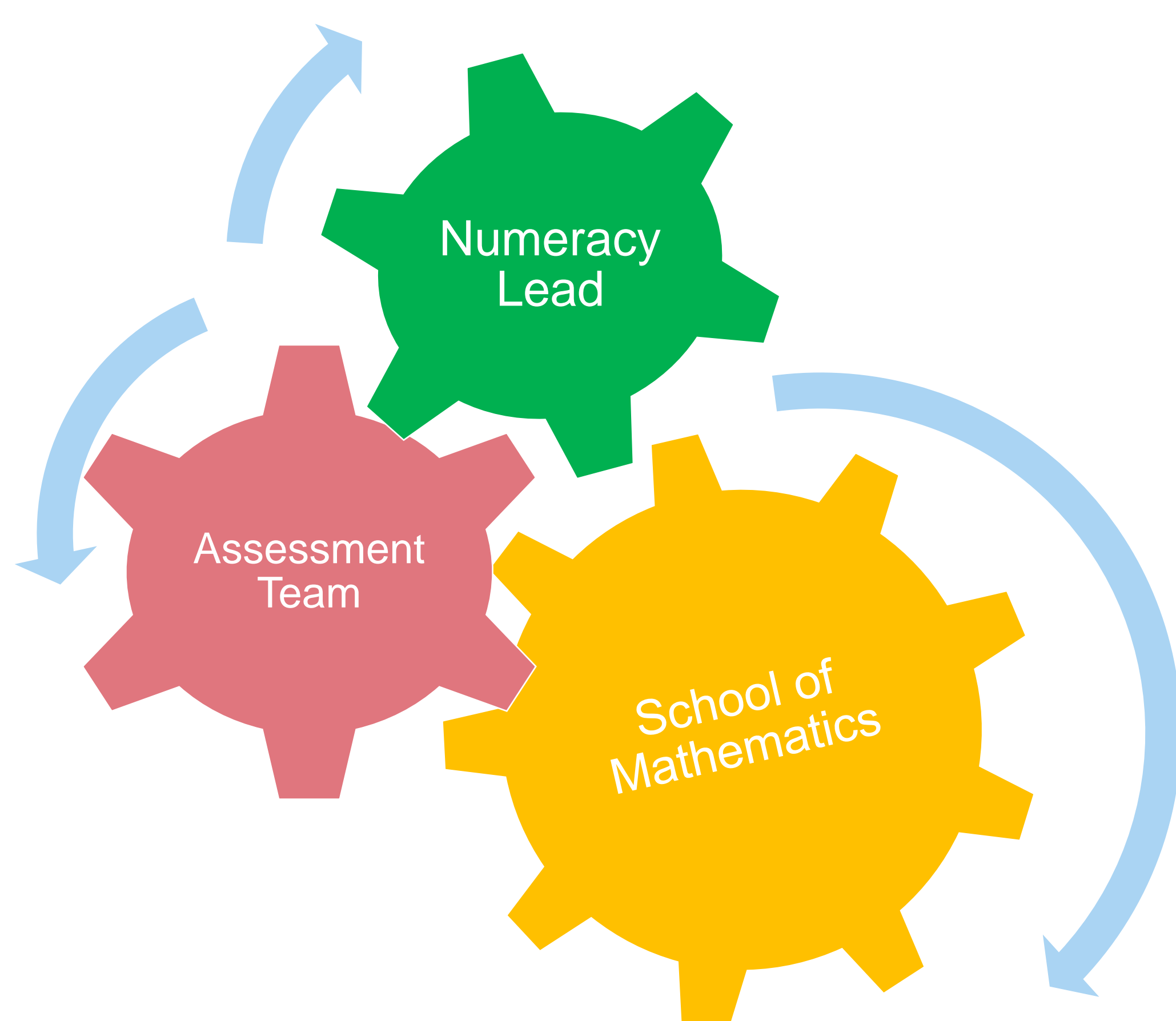
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Background

- Drug calculation skills are fundamental to medication safety. Despite the importance of this skill, evidence suggests that more than half of nursing students around the world fail drug calculation assessment. It is therefore important to strengthen nursing students' drug calculation skills during their education.
- Multi-modal educational (MME) approaches have been shown to improve nursing students' drug calculation skills.

Aim

To evaluate the impact of a multi-modal educational (MME) approach on undergraduate nursing students' drug calculation skills.



Methods

- Quality improvement principles were used to guide the MME approach.
- Initial data from previous numeracy assessments were reviewed by the Numeracy lead. Pass rates were around 64% at first attempt summative assessments.
- Numeracy lead and the School of Mathematics collaborated to review current exam process, online learning materials and common errors made by students at first attempt summative drug calculation assessments.
- Following the review of the initial findings, several strategies have been planned and implemented in collaboration with the school of mathematics.

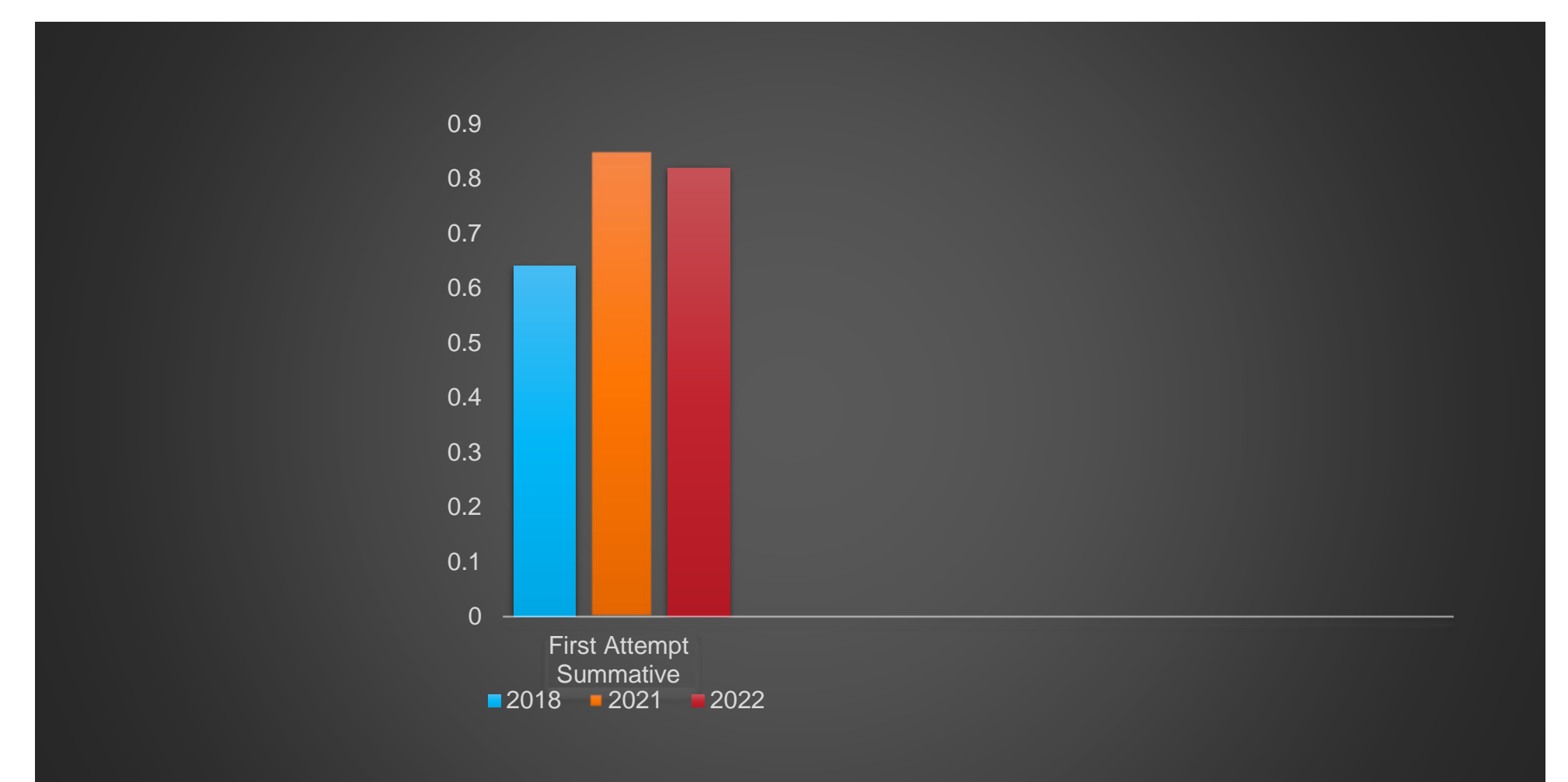
Numeracy lead collaborated with the Assessment team to review the numeracy exam process and guidelines.

Students were given daily online mock drug calculation exams and offered one-to-one or group math tutorials by the Numeracy lead or by the School of Mathematics prior to their summative assessment.

User-friendly guidelines and learning materials have been developed. Data from daily mock assessments were used to monitor students' performance and design appropriate teaching strategies.

Results

- Data from summative assessments were compared Pre and Post implementation of the MME collaborative approach.
- An evaluation of this MME approach revealed that the new initiative had a positive impact on students' drug calculation abilities and improved the overall first attempt pass rate from 64% to 84%.



Discussion & Conclusion

- The findings suggest that with a MME approach, nursing students' abilities to calculate accurate dosages can be improved.
- The teaching strategy of one-to-one math tutorial was clearly identified by students as a benefit.

References

- Mackie, JE and Bruce, CD (2016) Increasing nursing students' understanding and accuracy with medical dose calculations: A collaborative approach. *Nurse Education Today*. 40: 146 – 153
- Stake-Nilsson, K et al (2022) Medication dosage calculation among nursing students: does digital technology make a difference? A literature review. *BMC Nursing*. 21: 123.