Innovations in preparing Nurses for prescribing medicines at the University of Galway

John P. Kelly, Lyndsay Olson and Peter Cantillon
University of Galway, School of Medicine

This course prepares nurses to become prescribers of medications in a variety of clinical specialties. The course blends theoretical and applied educational interventions designed to develop a deep understanding of both the science and the practice of pharmacotherapy.

CONTEXT

- Since 2007, nurses in Ireland have been permitted to prescribe medicines
- In response to this educational need, the University of Galway created a 30 ECTS postgraduate course which was introduced in 2010.
- We were involved in developing and delivering a 10 ECTS module (Pharmacology, Health and Medicinal Prescribing) which would provide a theoretical underpinning of Pharmacology with applications in practice.

PEDAGOGICAL APPROACH

- The course is taken by nurses working in a diversity of specialities across Ireland, and is delivered over a 12-week semester, using a blended approach.
- A major challenge was being able to teach Pharmacology to students who often have a limited knowledge once their training is completed (Dilles *et al.,* 2011). Thus, we aim to achieve the following for our students:
- To provide a broad background to how drugs work, covering a range of drug classes and patient settings
- To give opportunities to apply this general knowledge to their specific work settings

- The module has undergone considerable evolution since its introduction, shaped by our reflections and suggestions from student evaluation.
- This has resulted in the current format of 5 units, moving from theory into practical applications.

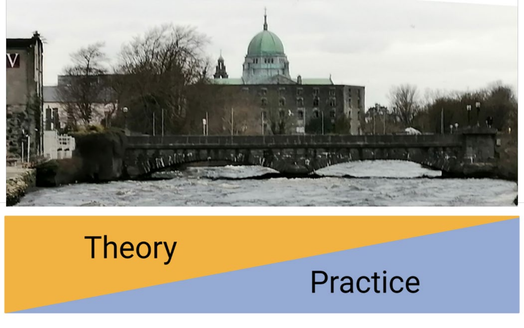


Figure 1: As the course develops, the content moves from general theoretical principles to involve learning activities that allow the students to draw on their practice.

COMPOSITION OF UNITS

- The first two units are theoretical in nature.
- To start, Unit 1 covers the fundamentals of pharmacology, whilst Unit 2 covers drugs and disease.
- These 2 units are delivered as an online interactive resource using the Articulate Rise 360 e-learning platform, which enables the students to work flexibly.
- The on-campus sessions serve to identify misconceptions and support the learning of this theoretical element of the module. The assessment method for these 2 units is by MCQ, which students have opportunities to practice prior to the assessments.
- Then, Unit 3 provides an opportunity for students to work in teams that identify a drug-related issue that they share a mutual interest in learning more about. Team-based learning of this nature is a very useful pedagogical strategy (Burgess *et al.,* 2020), which has the additional benefit for students to get to know each other and share their practice experiences. Assessment of this module is the submission of a PowerPoint recording.
- The next Unit 4 involves the submission of an assignment on the application of pharmacological principles to the student's work setting.
- Finally, the objective of Unit 5 is to conduct a case study drawn from the student's work setting experiences.

Week No.	Unit
1	Unit 1: Fundamentals of Pharmacology
2	
3	Unit 2: Drugs and Disease
4	
5	Unit 3: Team-based Activity
6	
7	Unit 4: Application of Fundamentals
8	
9	Unit 5: Case Study
10	

Figure 2: The five units run sequentially, at 2-week intervals.

THE 23-24 COHORT

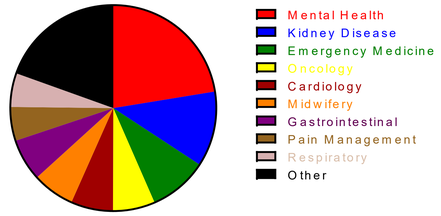


Figure 3: The specialty areas in which the students are currently working

- Use of Haloperidol or Levomepromazine in Refractory Nausea and Vomiting in Palliative Care
- Intranasal fentanyl in acute pain management in paediatrics
- Buccal Midazolam usage to manage distress and self injury in a person with intellectual disability
- Drug induced prolonged QTC interval, a potentially life threatening side effect
- Hyponatremia as a complication of SSRI use in older adults
- Carboprost use in the Treatment of postpartum haemorrhage
- Prescribing challenges of Dexmedetomidine for Delirium
- Sodium–Glucose Cotransporter 2 Inhibitors & Euglycemic Diabetic Ketoacidosis
- Management of opioid induced constipation using Naloxegol
- Management of erectile dysfunction in prostate cancer

Figure 4: A selection of the topics that the students chose for their team-based activities in Unit 3.

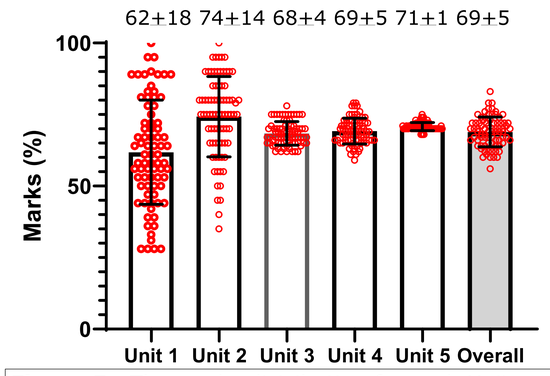


Figure 5: The marks distribution for each Unit, along with the overall marks for the 23-24 cohort (N=78). Above each bar, the mean and standard deviation is shown.

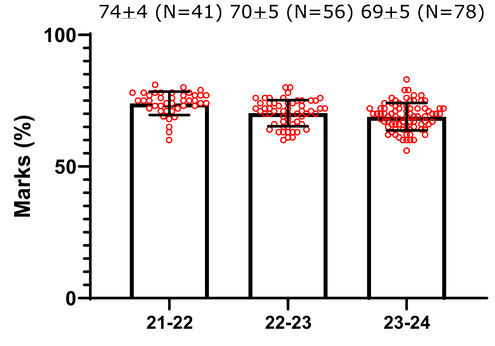
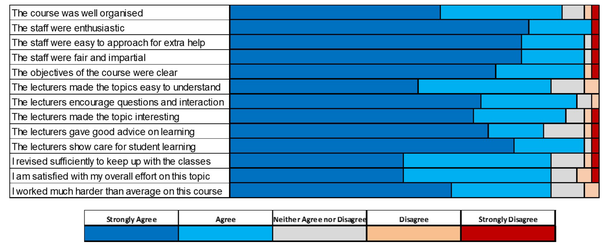


Figure 6: The marks distribution for academic year since the introduction of the 5 unit approach. Above each bar, the mean and standard deviation and number of students is shown

STUDENT EVALUATIONS



What did you like most?

- Course content relevance/application to clinical practice
- On campus lectures and teaching approach
- Assessment structure
- Pharmacology knowledge and new insights into practice
- Support and accessibility of materials

What could be improved?

- Spread the course over a longer timeframe
- Reduce the number of assessments

Figure 7: Student evaluation of the module (response rate 47/78 = 60%)

CONCLUSIONS

- We have introduced a number of features to our postgraduate course for preparing students to prescribe medicines.
- Student evaluation has been very positive, with particular support coming from the continuous learning and cumulative assessment strategies adopted, as well as the relevance the module has as a foundation for launching into the next stage of developing as effective nurse prescribers.

REFERENCES

Burgess, A., van Diggele, C., Roberts, C., Mellis, C. (2020): Team-based learning: design, facilitation and participation: *BMC Medical Education* **20:** 461.

Dilles, T., Vander Stichele, R.R., Van Bortel, L. (2011): Nursing students' pharmacological knowledge and calculation skills: ready for practice? *Nurse Education Today.* **31:** 499-505