"Students pushed themselves and succeeded in designing pharmaceutical care for some of the most complex infections"

Problem based learning: a pedagogical method for embedding complex infection management skills and confidence in professional pharmaceutical practice

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Background

Antimicrobial resistance (AMR) is one of the greatest threats to human health and is a leading cause of mortality globally; requiring treatment with novel, toxic, and complex therapies.

A problem-based learning (PBL) programme was designed to equip Level-7 MPharm students with the skills and confidence to optimise pharmaceutical care for people with complex AMR infections.

The programme was evaluated through live assessment and student feedback.

Learning outcomes

1. Identify knowledge gaps and develop an action plan to address these.
2. Apply problem solving, critical thinking, and decision making skills to formulate pharmaceutical care plans for patients with complex and drug-resistant infections
3. Discuss and justify different treatment options for patients with complex and drug-resistant infections
4. Deliver a case presentation and appropriately respond to professional challenge on decisions presented.

Programme of Learning

Outline

- Online introduction to problem-based learning (pre-work)
- In-person introductory workshop with example scenario and case presentation (CP)
- Small groups provided complex cases based on emergent threats
- In-person CP (CP1) with professional challenge, feedback and feed-forward
- In-person CP (CP2) with professional challenge and feedback
- All student presentations made available on Blackboard (post-work)

Pedagogical rationale

- PBL proven pedagogically to develop clinical problem solving and decision making skills.
- Sessions staffed by both science and clinical experts to integrate learning; assuring breadth, depth, and relevance.
- The selected *emergent threats* reflect current and future clinical scenarios pharmacists face in practice
- Assessment and feedback used Royal Pharmaceutical Society case presentation assessment tool; introducing students to these tools early and allowing reflection and improvement between presentations
- Aligned to General Pharmaceutical Council outcomes for initial pharmacist education and training.
- Covers most complex items from the *National antimicrobial stewardship competencies for UK undergraduate healthcare professional education*

Evaluation

Educator Perspective

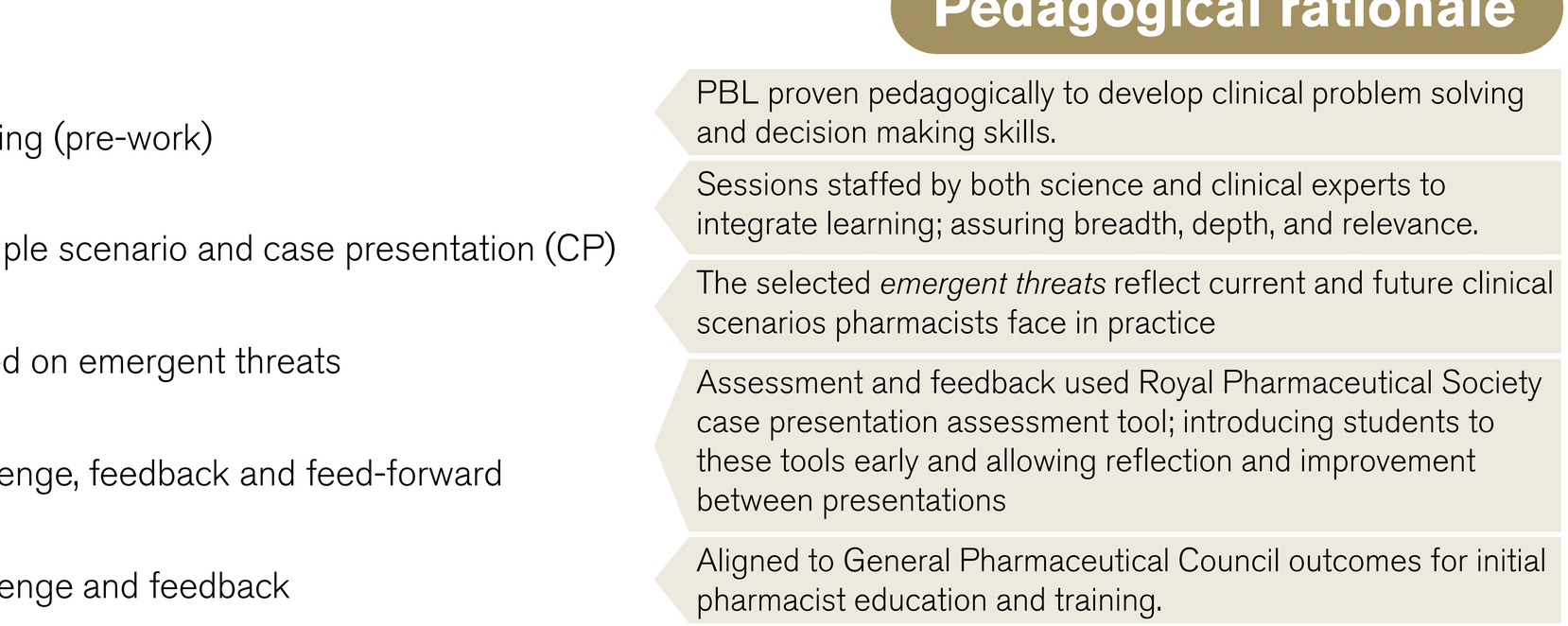
No formal teaching on the conditions was provided – students pushed themselves to undertake the necessary self-directed learning.

Students demonstrated an ability to utilise clinical guidelines and original research to optimise pharmaceutical care.

Students responded well to professional challenge and actively engaged in clinical discussions.

Between CP1 and CP2 students demonstrated improvement in clinical and professional decision making and justification.

Student Feedback



Moving Forward

Based on written feedback,

- PBL was incorporated into Level-5 sessions on AMR, and will feature across MPharm from 2022.
- Information finding (such as guidelines and evidence) needs to be built into earlier years of the MPharm

Assessment tool will be adapted and trialled as a pilot "continuous low-stakes" assessment in preparation for E2030 and MPharm reaccreditation