Teaching Students How to Integrate Basic and Clinical Sciences to Enhance Clinical Decision Making

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PURPOSE

- Students tend to learn in silos, and with the amount of material covered in Pharmacy courses, there are few chances to require them to integrate knowledge from different topics. Integrate basic and clinical science concepts and be able to address cases with multiple issues that better represent real-life situations. The capstone sessions aim to provide opportunities for such cases.
- The capstone sessions provide opportunities for collaboration between basic and clinical faculty, which may also result in better delivery of material earlier in the curriculum.
- The capstone sessions expose P3 students to many of the topics they learned earlier in the curriculum to better prepare them for their advanced experiential training.

CAPSTONE SESSIONS

Setup:
- The capstone module is made up of eight sessions as part of the Principles of Drug Action V course offered during the Fall of the P3 year.
- Each session runs for two hours and introduces an average of three cases. Each case is based on a specific disease state or patient population (Table 1) but integrates concepts from other topics. For most topics, at least one faculty from each of the three participating departments, clinical sciences, medicinal chemistry and pharmacology, were present.

Pre-Session Preparation:
- Faculty prepare three to five case studies that integrate basic and clinical science knowledge along with individual assessment questions. The cases and assessments are reviewed by the director of education to ensure comprehensiveness, flow and consistency between sessions.
- Students are given a study guide around one week prior to the session. The guide includes resources that they may use to prepare for the session.

Capstone Session:
- Students are assigned to teams of 5-6 students.
- An open-book individual assessment is given during the first 10 minutes of each session as an assurance readiness assessment. These assessments test basic knowledge of concepts discussed during the session.
- Teams are given around 20 minutes to work on each case and provide answers to accompanying questions.
- The faculty randomly choose a team to go over the case and present their answers to the provided questions. A discussion moderated by the faculty ensues, typically focusing on integration of basic and clinical knowledge and how to utilize such knowledge to arrive to the best clinical decision.

Assessment:
- Each team receives a grade based on the answers and discussion on the cases they are assigned (20% of the grade).
- Students receive individual grades for participation in the sessions.
- The final assessment is given during the first 10 minutes of each session as an assurance readiness assessment.
- The final assessment is graded on a ten-point Likert scale. The highest satisfaction rate was seen when a clinical expert was present during the discussion.

STUDENT SURVEY

- Students were also given the chance to include open-ended comments.
- Response rate was 98.4%. Overall, student perception of the capstone sessions was positive.
- Figure 1 shows the mean values for student responses to the five question survey, based on a 5-point Likert scale.
- The highest satisfaction rate was seen when a clinical expert was present during the clinical decision making.

CONCLUSIONS

- Information of the capstone sessions was well received by students.
- Collaboration between faculty on the design of the cases resulted in improved communication when teaching the same material earlier in the curriculum.
- A few changes to the sessions will be implemented starting in the fall of 2018, based on student feedback. These changes include:
  - Inclusion of a clinical expert in every session.
  - Modification of amount of time per topic. For example, less time will be given to drug metabolism and more time for cardiology.
- Better resources will be available to students for preparation for the sessions.
- Individual assessments will be part of the pre-session preparation, allowing for real-time assessment and more time for case presentations.

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DISCLOSURES

The author has no relevant disclosures concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.