Assessment of Osteopathic Core Competencies in Two Pre-Clinical Medical Knowledge Courses

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Introduction

In pre-clinical medical education it is paramount to ensure that students have mastered basic medical knowledge and internalized fundamental clinical skills that will facilitate their transition to clinical education and learning throughout their careers. Embedded within the pre-clinical training should be competencies that define the curriculum and guide both learning activities and assessments. Though these competencies may be viewed as descriptions characterizing the anticipated skillsets (and associated knowledge base) of the physician at the completion of their training, they are also essential for learners and educators during the process. Such competencies form the foundation for clinical reasoning and problem solving, and become crucial building blocks for entrustable professional activities. Learning outcomes should reflect competencies that are foundational and framed throughout a curriculum. Through the learning process, medical educators need to facilitate acquisition of this knowledge and via assessments make inference about the process. This pilot study examined how both content and assessments in two pre-clinical courses mapped to osteopathic core competencies. Content in these courses was delivered through standard presentations (e.g., lecture), interactive sessions (e.g., problem sets), and laboratories. Both basic science and clinical skills content were delivered in the courses, with assessment taking the form of multiple choice question (MCQs) exams. MCQs have been found to be valid and reliable tools for measuring recall of factual information, problems solving skills, and clinical competence.

Methods

Design
- The existing curricular structure was used to map core competencies using two medical knowledge courses: Infection & Immunity (Year 1) and Neurology (Year 2).
- Duration of courses: four to six weeks.
- Content was generated by the instructors and framed for the students via a weekly module preparation guide.
- Mid-Course and End-of-Course assessments were used for assessing student learning outcomes.
- Exams were timed, computerized assessments consisting of MCQs ranging from 76-120 items.

Data Collection and Sample
- Coding mechanisms used for both instructional activities and assessment items were based on the Core Entrustable Professional Activities.
- Question writers and Course Directors matched instructional activity and assessment items with the associated Osteopathic Core Competencies.

Analysis
- Basic statistics were used to summarize the data. Coding derived from content and assessment were matched to gauge the level of congruence between the content delivered and assessed using a core competency mapping framework for both two courses.

Results

Infection and Immunology Course Content Delivery and Assessment

I&I Course Content by Competency

I&I Course Content by Competency

Neurology Course Content Delivery and Assessment

Neurology Course Content by Competency
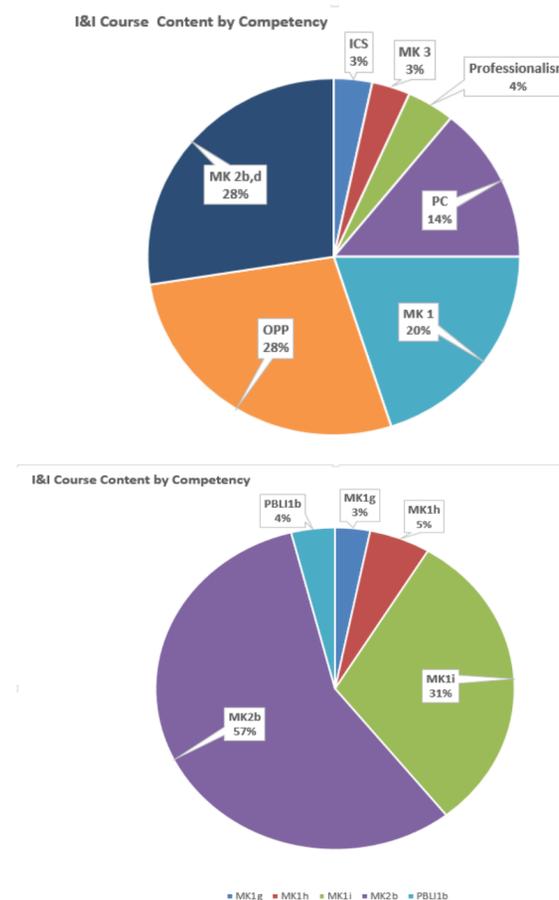
Neurology Course assessment by Competency
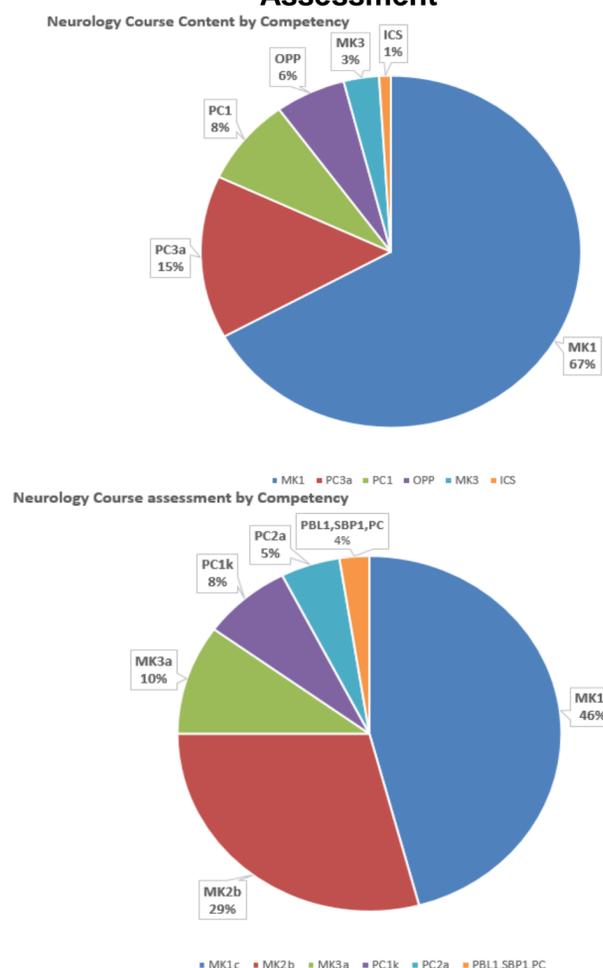
Conclusion

- Multiple competencies were embedded in the delivered content, consistent with the concept of an integrated curriculum. However, course assessments were predominantly focused on the Medical Knowledge dimension of the core competencies. This observation reveals a limitation of the current curricular structure (and this pilot study), perhaps reflective of its evolution from a former 'systems-based' structure. Furthermore, despite course integration, there is a stand-alone clinical skills course that runs concurrently with the medical knowledge courses. The assessment outcomes of the clinical skills course were not included in this study and will be featured in the next phase of this work.

- In the context of Osteopathic Medical education, AOA core competencies offer a systematic framework for curriculum development, delivery and assessment. Educators involved in curricular delivery should have a shared understanding of these concepts. In doing so, this will facilitate the integration of content and assessment, and will build toward competency. It is only by improving this process that medical training will ultimately directly influence competency attainment and inform entrustment in the clinical years.

- Designing and implementing a medical curriculum is a complex process and insights from this work will be featured as OUHCOM embarks on a novel curricular design process (ongoing at present). The explicit development of a design within this context will provide ample opportunities for tracking student progress towards entrustment.

References

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