

2D Short Communications: Basic Science

1 – Clinical Integration

Location: Meeting Hall IV, PCC

2D/1

Linking basic science knowledge retention and perceived clinical relevance in a vertically-integrated curriculum

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Background: For medical students to apply clinical reasoning based on sound scientific principles, they must be able to retain basic science knowledge as they progress. However, when knowledge gained is not perceived as applicable to clinical contexts, it is less likely to be retained.

Summary of work: We investigated the relationship between perceived clinical relevance and retention of basic science knowledge in Years 2-5 students through a 50-item multiple-choice question (MCQ) examination. Information was collected pertaining to demographics, prior educational experience, and the perceived clinical relevance of each question.

Summary of results: A total of 232 students (response rate 50%) undertook the assessment task. Retention of basic science knowledge was significantly affected ($p < 0.001$) by year of study, gender and student origin. There were increasingly positive correlations between items answered correctly and their perceived relevance from Years 2 to 5 (Year 2, $r = 0.040$; Year 3, $r = 0.26$; Year 4, $r = 0.36$; Year 5, $r = 0.60$).

Conclusions: This study highlights the increasingly positive correlation between perceived clinical relevance and the retention of basic science knowledge with progression to more senior years. Strategies to promote the clinical relevance of teaching material to students may be critical to the retention of that knowledge and its ultimate transfer to the clinical context. Perceived relevance of a subject matter elicits deep learning and fosters retention of knowledge.

Take-home messages: Basic science knowledge is more likely to be retained if students have a greater perception of its clinical relevance.

2D/2

On the relevance of biomedical knowledge for the acquisition of clinical knowledge

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Background: Basic science education in undergraduate medical education faces several challenges. One prominent discussion is focused on the relevance of biomedical knowledge for the development and integration of clinical knowledge. Although the value of basic science knowledge is generally emphasized, several theoretical positions differ on the relative role of this knowledge and the optimal approach for its instruction. We address the question whether and to which extent biomedical knowledge is related to the development of clinical knowledge.

Summary of work: We analyse repeated measure data of performances on basic science and clinical knowledge assessments. A sample of $N = 598$ medical students from a traditional curriculum participated in the study. Overall a developmental phase of 2 years of medical education was covered. Structural equation modelling was used to analyse the temporal relation between biomedical knowledge and the acquisition of clinical knowledge.

Summary of results: Our data indicates a decline in basic science knowledge which is complemented by a growth of clinical knowledge. Statistical comparison of several structural equation models revealed that a model specifying unidirectional relations from earlier states of biomedical knowledge to subsequent changes in clinical knowledge explained the data best. However, the parameter estimates indicate that this association is negative.

Conclusions: Our analysis suggests a negative relation between earlier levels of basic science knowledge and subsequent gains in clinical knowledge. We discuss limitations of our study such as the given educational context and the non-experimental nature.

Take-home messages: Results presented here hint at possibly critical issues in basic science education that have been rarely addressed thus far.

2D/3

Student perceptions toward case based approach of teaching physiology

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