

## **Redistribution of Basic Medical Science Content during Undergraduate Medical Education Curricular Reform: An Expert-Derived List of Recommendations**

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### **Purpose:**

Over the past two decades, calls for medical school curricula reform have emphasized earlier student exposure to the clinical environment, resulting in shortened classroom time before students begin clinical rotations and compelling careful examination of the content and redistribution of basic medical science instruction across the pre-clinical, clerkship, and post-clerkship periods<sup>1</sup>. Educators aim to focus pre-clinical content on that which is crucial for clinical care of patients, and to integrate basic science education into clinical experiences<sup>2</sup>. However, there are no guidelines on how traditional pre-clinical instructional topics are best redistributed within this new undergraduate medical education (UME) curricular model.

### **Methods:**

A modified Delphi process was used to produce recommendations that guide redistribution of basic medical science instruction during UME curriculum reform. We performed semi-structured interviews with national UME experts (from institutions that previously underwent curricular reform with a shortened pre-clinical instructional period) to elicit perspectives on how decisions were made at their institutions. Interviews were transcribed verbatim and thematically assessed. The findings were then condensed into a list of guidelines and distributed to a larger group of national UME educators to gauge their level of agreement with each recommendation. The guidelines were revised based on level of agreement and comments associated with each recommendation, and subsequent versions were redistributed amongst participants for feedback. Guidelines with which at least 70% of participants somewhat or strongly agreed (based on a 5-point Likert scale) were included in the final list of recommendations.

### **Results:**

We recruited 40 UME educational leaders from 15 institutions in the United States. Initial interviews were conducted with nine of these participants, after which 31 guidelines were compiled and distributed in survey format. 17/40 (42.5%) participants completed the initial survey, after which 3 guidelines were removed, 5 were added, and 5 were revised based on feedback. 22/38 (58.0%) participants responded to the second survey, after which 33/33 (100%) guidelines reached the inclusion threshold, defined as having at least 70% of participants somewhat or strongly agree. These guidelines were categorized by curriculum decision-makers, general design strategies, and topic placement specific to the pre-clinical, clinical, and post-clerkship curriculum phases. 12 of the guidelines were considered “major” recommendations based on at least 70% of participants indicating strong agreement.

### **Discussion:**

Amongst the guidelines, there was an overarching emphasis that basic science instruction should be vertically integrated into all curricular phases (pre-clinical, clinical, and post-clerkship) with evidence-based teaching strategies including deliberate spiraling. This vertical integration has known impacts beyond knowledge acquisition including boosts to student motivation, professional identity development as doctors, and transition to independent practice, although these were not explicitly explored in this study<sup>3</sup>. With regards to specific teaching topics, the recommendations emphasize that basic science be taught within clinical context, with acknowledgement that faculty may lose some personal autonomy and historically-taught concepts may no longer have relevance in the reformed curriculum. Instructional topics chosen for the pre-clinical phase should focus on need-to-know topics with an emphasis on the development of critical thinking skills, understanding that more advanced basic medical science topics will be revisited post-clerkship.

## References

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