

Making a square hole for a square peg: A course structure for modern medical education

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Introduction:

The transition of medical education to an integrated delivery using active-learning methods is occurring in medical schools across the nation and is demanded by accrediting organizations. Sustained success of this new curricular model requires more than piecemeal changes to content organization and classroom delivery. Attempts to fit this new 'square peg' into the 'round hole' of traditional curricular structure are sub-optimal and more likely to fail. With the changes to medical curricular being mandatory for continued accreditation, we have implemented a 'square hole' block design to accommodate and support active-learning and content integration.

Methods:

Changes were implemented in Block 6 (Second Year, Cardiovascular, Pulmonary, Heme Pathology) in 2018 & 2019. Structural elements included...

Uniform expectations: Uniform weekly architecture was implemented (see Figure 1).

Back-to-Basics: Each week began with a 'back-to-basics' student-led study session that reviewed relevant first-year content.

Active-Learning: All classroom content was delivered via active learning methods.

Methods:

Increased role of the block director: as a medical educator, the block director developed classroom activities to enhance efficiency and integration.

More preparation, less classtime: As student preparation is *critical* to the active classroom, class time was reduced from 11 to 8 hours/week to increase preparation time.

Focused preparation resources: to further enhance preparation, highly focused resources (iBooks) were generated that covered basic concepts (see poster "One Less Silo: generating an integrated resource to support integrated delivery").

Efficiency of time: Two 4-hour blocks of class time per week used application exercises as a formative assessment to determine areas for student improvement and thereby use the reduced class time more effectively.

Themes: Longitudinal themes for each system (e.g. EKG interpretation throughout the cardiovascular portion and chest x-ray interpretation throughout the pulmonary section) and integrated cases provided multi-system approach.

Team-teaching: Use of team-teaching promoted integration of the clinical, basic science and pharmacology content.

	MON	TUES	WED	THURS	FRI
8.00-9.00	Prep-time and Back to Basics	Classroom Application	Prep-time	Classroom Application	PBL
9.00-10.00			PBL		
10.00-11.00	PBL	Classroom Application	PBL	Classroom Application	PBL
11.00-12.00					

Figure 1: Weekly Structure. Orange is preparation time, Blue is time spent active learning. PBL (Problem Based Learning) sessions are standard in the M1-M2 years.

Results:

Student performance on the NBME exam improved over prior years and was significantly higher than the national average in 2019 (Figure. 2). Students rated the block performance 4.1/5, which was consistent with previous years. Students remarked on the value of the iBook resources, and that 4-hour sessions were too long.



Figure 2: Mean NBME Block 6 scores. Red line represents national average.

Summary/Conclusions:

This approach to block design to support active-learning was associated with:

- The highest NBME exam performance in the block's history.
- A statistically significant increase above the national average for the first time.
- No negative impact on student evaluations, despite a shift in learning paradigm.

This structure supports active-learning. Key components to the block's success are believed to be the addition of allocated preparation time and highly focused resources.

Future iterations will include further integration of basic and clinical sciences through the team-teaching approach.