

Title: Early clinical exposure through three component blended learning

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What problem was addressed: The medical educational system in India has moved towards a competency based curriculum with introduction of early clinical exposure as a requirement. Innovative modes of learning are now imperative and in response to this need, a blended learning methodology (BLM) program was developed and implemented in anatomy.

What was tried: A team composed of anatomy faculty and experts designed BLM with an online, face-to-face, and learning activity component. Five online modules were developed on an institutional learning management system. After pilot testing and approval by the institutional review board, the study was conducted, with informed consent, on first-year medical students (n=100). Students were given access to the online modules one week prior to the face-to-face component. This was followed by one or two relevant clinical activities for each module (procedural skills training, ultrasound and cross sectional anatomy, case based discussion, clinician lecture or clinical visit). Assessment by MCQ tests was conducted at the end of five BLM and five non-BLM topics, which were validated and found comparable by experts. An anonymous survey was used to solicit feedback from students regarding their BLM experiences.

What lessons were learned: BLM was well received by students and faculty and found to be effective to improve student performance. Most of the students enjoyed the BLM experience (81%), reported that it increased self-learning (80%), and became aware of their self-directed learning skills (81%). Many developed an increased interest in anatomy (81%) and appreciated the clinical relevance of anatomy (87%). A majority want BLM in the future also (76%) and even want to help in developing future modules (68%). Faculty too found BLM enjoyable (12/15) and want to be involved in BLM teaching in future (10/13). Learning activity was the most enjoyable component of BLM (students- 43%, faculty- 60%), whereas, face-to-face component was the most useful for learning (students- 53%, faculty- 46.6%). The BLM program was given a mean satisfaction score (out of 10) of 8.14 +/- 1.15 by the students and 7.8 +/-1.699 by the faculty.

A statistically significant increase in MCQ scores was noted for BLM 2, 3, and 5 versus non-BLM topics (p value <0.001). BLM 1 showed lower scores (p value <0.001) which could be due to technical challenges in the first module.

Blending different modes of teaching provides an enriched learning experience promoting learning in multiple domains. The introduction of BLM in the light of a new competency based curriculum in India provides multiple avenues for early clinical exposure. Feasible innovations done included integration of online and classroom content, introduction of procedural skills training, case-based discussions for vertical and horizontal integration of anatomy, and ultrasound training for first-year medical students. Students did not find clinical guest lectures as appealing as other more engaging activities.

The challenges we faced included faculty feeling extra workload as a result of BLM development work and students expressing difficulty in time management. Faculty was made

comfortable by reassurance. Protected classroom hours for online self-learning are being planned in the future to help the students.