9H1 (134362)
Does Team-Based Learning Improve Clinical Reasoning in Neurology?

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Background: Clinical Reasoning (CR) is the ability to weigh clinical information and make decisions under conditions of uncertainty. Team-Based Learning (TBL), an active learning method, has been shown to improve knowledge in neurology; however, improvement in CR has not been demonstrated. We have developed and validated a Script Concordance Test (SCT), assessing CR in two key neurology topics — neurological localization (NL) and neurological emergencies (NE). We aimed to determine if TBL improves CR in medical undergraduates in these two topics using our SCT as an outcome measure.

Summary of Work: We conducted a modified crossover study involving 179 medical students. We compared TBL to interactive lectures. Each student group was randomly assigned to TBL in either NE or NL, and interactive lectures in the other topic. Groups were randomised in a 1:1 ratio. TBL and interactive lectures occurred in the same 2½-hour session. The SCT was done immediately after the session. We analysed the differences in SCT scores between groups using the unpaired T-test.

Summary of Results: Mean SCT scores in NL for students receiving TBL were higher compared to interactive lectures (64.8% vs 61.7%, mean difference 3.1%, 95% CI 0.7–5.5%, p=0.013). Effect size was 0.37. Mean SCT scores in NE, however, were not significantly different between groups (66.6% vs 67.0%, mean difference 0.4%, 95% CI -2.3%–3.1%, p=0.75).

Discussion: TBL was modestly superior to interactive lectures in improving CR in neurological localization. For neurological emergencies however, TBL and interactive lectures were equally effective. This differential effect may be due to contextual factors such as nature of topic or lecturer expertise.

Conclusion: TBL may be superior to interactive lectures for improving neurological CR in some contexts; effect size is modest.

9H2 (135328)
An innovative strategy for implementing Team-Based Learning in large cohorts

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Background: An advantage of TBL over other learning approaches is the ability to engage students in large classes while allowing them sufficient opportunities to interact. The question remains though, at what point does the class size impinge upon interactions between student teams and between students and faculty? At the Lee Kong Chian School of Medicine (LKCMedicine), TBL replaces traditional didactic teaching in the preclinical years. A significant challenge is to scale up LKCMedicine’s TBL approach to accommodate larger student numbers, as the cohort grows from the current 90 to over 200.

Summary of Work: We have developed a theoretically grounded strategy for innovating on and scaling up TBL. This strategy balances our desire to maintain interactivity in the classroom with pragmatic resource and manpower concerns.

Summary of Results: We have identified that for large cohorts (over 100 per year) the quality of the intra-team discussions were more difficult to maintain than the intra-team discussions. Unhindered interaction with subject matter experts was also more crucial at certain points during TBL than others. As a consequence, our strategy involves keeping the whole class together for the readiness assurance phase and splitting the class for the application exercise phase. These two phases are bridged by the burning questions phase, which is enabled by the application of innovative technology. This phase starts off as a student-led discussion in the large group and concludes in the split class, where teams have more opportunity to interact with a subject matter expert.

Discussion: Although successful implementation of TBL has been described for cohort sizes of over 200, maintaining classroom interactivity is challenging.

Conclusion: Our innovative strategy for scaling up TBL remains true to the principles of TBL, whilst ensuring interactivity is maintained.

Take Home Messages: 1. For large cohorts, classroom interactivity can be maintained by the appropriate educational strategy and technological innovation. 2. This method is transferrable across healthcare contexts and institutions.
#9H3 (136352)
A purpose-built system to facilitate Team-Based Learning: Lessons learned

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Background: Implementation of Team-Based Learning in a MD Program curriculum requires coordination and modification to content, facilities and teaching method. An electronic system can alleviate the administration burden and remove adoption barriers for instructors interested in implementing TBL.

Summary of Work: Our medical school is in the process of adopting Team Based Learning Across the curriculum. We will present the development and impact of an electronic team-based learning system that integrates with our student learning platform and demonstrate how we utilized the system to guide the creation of TBL modules and how it can better transition instructors into TBL teaching in a medical school. We will also demonstrate the features developed to streamline the implementation of TBL and the mechanisms for immediate feedback.

Discussion: From initial evaluation of the system, we received positive feedback among students and faculty on the adaption of the system. Availability of the TBL facilitation system allows seamless integration of TBL as a group activity, more faculty involvement in the creation, modification and explanation of the content, and better uptake of TBL as an alternative teaching method in our curriculum.

Conclusion: We have used the TBL facilitation method to not only streamline the administration process, but to create buy-in and uptake of TBL as a teaching method in our medical school.

Take Home Messages: An electronic system can alleviate the administration burden associated with the implementation of TBL and remove adoption barriers for instructors interested in implementing TBL.

#9H4 (135424)
Piloting interprofessional ambulatory surgical skills training between medical and nursing students utilising TBL method

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Background: University of Tampere Medical School and Nursing Education of Tampere University of Applied Sciences are developing learning for interprofessional skills training in a jointly operated new Skills Center with Tampere University Hospital. Team-based learning (TBL) was piloted in an ambulatory surgical skills training.

Summary of Work: Surgical removal of a mole and subsequent suturation of the wound was planned as a TBL session for medical and nursing students. Seven medical and seven nursing students volunteered to take part. The learning goals included surgical and nursing skills, and interprofessional attitudes. The TBL skills training consisted of advanced assignments, individual and group tests, teacher validation and the practical task. The teachers monitored the events. The students gave feed-back anonymously.

Summary of Results: Both the medical and nursing students took actively part in the group work and the practical task. The students communicated well and completed the task with minor guidance from the teachers. The student highlighted communication, collaboration and learning the strengths of the other profession.

Discussion: TBL pilot was successfully performed. The interprofessional learning goals were achieved based on the perceived student behavior and the results of the evaluation. The volunteer participation may result in more positive interprofessional attitudes than in a mandatory learning setting. The TBL session shall be expanded for the whole study year of 120 medical and appr. 20 nursing students during spring 2016. The comparison of results between the pilot and the mandatory event shall be presented.

Conclusion: TBL seemed to lead to effective interprofessional learning when applied in ambulatory surgical training. Research on innovative methods of learning are needed to promote interprofessional learning cost-effectively.

Take Home Messages: TBL is an applicable method for interprofessional learning Careful planning and evaluation is required for successful implementation of TBL.
Background: Team-based learning (TBL) is widely used in medical curricula. However, there has been little research on TBL applied in technology-assisted delivery across geographically distributed sites. The aim was to evaluate engagement of seventy-seven senior medical students in professional development workshops synchronously delivered via video conferencing to eleven rural and regional sites throughout New South Wales, Australia.

Summary of Work: Action research was used to design a pedagogical model to teach professional development to geographically dispersed senior medical students. An initial pilot workshop provided an opportunity for familiarisation with technology-assisted TBL, an introduction to team based work utilising situational judgement and clinical application questions, and provided valuable feedback for project development. A second workshop was conducted 3 months later, refining the pedagogical approach to maximise student engagement and build upon student knowledge and confidence gained in clinical practice. A Modified Motivated Strategies for Learning questionnaire was used to evaluate the workshops.

Summary of Results: Student questionnaire data showed that task value correlated significantly with elaboration (r=0.64, p<0.0001), critical thinking (r=0.60, p<0.0001), and peer learning (r=0.54, p<0.0001). There was also a significant correlation between peer learning and critical thinking (r=0.72, p<0.0001).

Discussion: The results support our hypothesis that students’ engagement with applying principles of professionalism in team-based groups can drive deeper learning within this important domain of medical practice. Importantly, technology was not a barrier to student engagement.

Conclusion: This study showed that technology-assisted delivery of modified TBL is both a feasible and acceptable pedagogy to facilitate medical student engagement with learning professionalism.

Take Home Messages: Technology assisted TBL is a promising pedagogy by which senior medical students may apply the principles of professionalism, despite a geographically dispersed learning environment.