Physical Findings Progress Test at a Medical School

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Introduction: Detection of physical findings is a core aspect of clinical performance ability that medical education curriculum should teach, assess, and remediate. However, there is a limited understanding of medical students’ development of physical finding skills. The purpose of this study is to investigate medical students’ physical findings skills progress across all four years of the curriculum to understand student achievement of these skills over time. The findings of this progress study can guide individual students in their developmental progress and curriculum improvement by informing faculty of students’ longitudinal and cross-sectional progress in their physical findings skills.

Methods: We developed a computer-based physical findings progress (PFP) exam to measure students’ diagnostic abilities of visual and auditory discriminations. Sixty-five test items were created in collaboration with six clinical faculty members. The exam includes detection and description of ekg, x-ray, heart sounds, breath sounds, skin lesions and movement findings, which were based on the book, Evidence-Based Physical Diagnosis. The exam was implemented at the beginning of the year with incoming students in July 2014 (Year 3) and August 2014 (Year 1, Year 2, and Year 4). Descriptive statistics and one way ANOVA were used to determine group differences in physical findings detection.

Results: Two hundred eighty-two students completed the PFP exam (98%). Students spent 31 minutes to complete the exam on average. The reliability of the exam was .860 (Cronbach’s Alpha). Descriptive statistics showed that the data have normal distributions for each year. One way ANOVA and Tukey HSD showed that students’ physical findings skills increased by training year \([F(3, 278)=230.04, p=.000]\):

- Year 1 (Mean=21.35, SD=4.66),
- Year 2 (Mean=28.13, SD=5.00),
- Year 3 (Mean=35.91, SD=5.19),
- Year 4 (42.51, SD=5.70).

While group means increased, within group variation did not change across four years. That is the physical findings skills of the students within classes did not become more uniform suggesting that growth is opportunistic rather than through planned curriculum. Generally, students are expected to become more homogeneous in terms of learned skills and knowledge as they go through planned instruction. The current study findings may indicate that there is a need for planned curriculum for physical finding skills in medical education.

Discussion and Conclusions: The role of medical schools is to take their students from novice to higher levels of competence in the practice of medicine. A progress test can help medical students and educators know how well they achieved the goal. This study found that the medical students’ physical finding skills increased each training year. However, the physical findings skills of the students within classes did not become more uniform suggesting that growth is opportunistic rather than through planned curriculum.


#4D2 (23731)
A qualitative evaluation of psychiatry clerkship students’ experience taking the NBME subject test in teams

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Introduction: In 2010/2011, the National Board of Medical Examiners (NBME) psychiatry subject test was administered first to individuals, then to teams of third-year students at four medical schools that used Team-Based Learning (TBL) in their psychiatry core clerkships (1). This practice was novel in the respect that this was the first time any of these students had taken a “high stakes” team test. In 2011/2012, the study was expanded to include two schools where TBL was not used in the psychiatry clerkship. To better understand the experience of learners, we performed a qualitative evaluation using focus groups to answer the question: “How did the psychiatry clerkship students in TBL teams and non-TBL groups experience taking the NBME subject test in teams?”

Methods: Institutional review board approval was obtained from each of the six sites. Students from each of the psychiatry rotation cohorts at the study...
site schools were randomly selected to participate (N=49). Students consented to participate and were compensated with a meal and a $30 gift card for their time and effort. A semi-structured interview format was used to guide the interviews. Interviews lasted between 45-60 minutes and were audio-taped and then transcribed. Each individual transcript was read and coded for themes by two of the study investigators. A third investigator verified the codes.

**Results:** The overarching theme from the focus groups was that taking the NBME team test was not popular but nevertheless perceived as valuable for students regardless if they were in TBL teams or not during the psychiatry clerkship. Students in both groups expressed not wanting to take the team NBME test and described feeling a range of emotions, including frustration, fatigue, embarrassment and anxiety. Despite this, both groups of students described the experience as valuable to their learning (i.e., learned more about psychiatry). Other themes that surfaced included interpersonal dynamics (i.e., reflected on how team functioned and strategized approach to taking the team test); and insights into self (i.e., ways to improve their individual test taking strategies) and into others (i.e., gained appreciation for how others think and how the psychiatry clerkship prepared them to take the subject test).

**Discussion and Conclusions:** The qualitative study provides a detailed description of students’ experiences taking the NBME team test and how the experience impacted them personally and their education. The experience of taking the NBME psychiatry subject test as a team was fraught with emotions. Taking the NBME team test was not popular among students but in the end it was deemed valuable to their learning. Benefits of the experience included learning more about psychiatry, reflecting on team dynamics and management, and insights into self and others.

**Conclusion:** Taking the NBME psychiatry subject test as a team was not popular but it was deemed valuable to student learning. Interpersonal dynamics and insights into self or others were also identified as themes.


#4D3 (23745)

**Can pre-testing impact learning and the implementation of planned changes in practice?**

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**Introduction:** Learning in interactive small learning groups that incorporate active reflection is accepted as an effective approach in CPD. Testing itself has been shown to promote learning in medical school, but its impact in CPD is unknown.

The Practice-based Small Group (PBSG) Learning Program in Canada has been providing family physicians with evidence-based educational material focussed on gaps between current practice and best practice. Physicians use this material to discuss clinical cases in small peer learning groups, with the intent to apply new knowledge to clinical practice. A practice reflection tool is used to document planned practices change in the form of commitment-to-change (CTC) statements.

This study was done to determine to what extent pre-testing can impact knowledge, CTC statements and subsequent implementation of planned practice changes among participants in the PBSG program.

**Methods:** Family physician members of the PBSG learning program were recruited across Canada. Prior to studying educational material provided, participant groups were randomised to either answer a pre-test (test group) or read a relevant review article (control group). They then discussed the educational material in small groups and recorded CTC statements on a practice reflection tool. Post-tests were administered to both control and test groups a week after the learning session. Three months later, participants reviewed their CTC statements and reported whether practice changes were made. Post-tests, CTC statements, and reported practice changes documented impact of the pre-test.

**Results:** Data was collected from 118 study participants who had discussed educational material in small groups for two different clinical topics. The results were consistent for both clinical topics and are summarized as follows: Study participants who completed the pre-test scored significantly higher on the post-test (66.8% test group versus 59.5% control group; p=0.007). There was no significant difference in the number of CTC statements recorded on PRTs (1.51 versus 1.48; not significant). However, more practice changes were reported by participants who completed a pre-test compared to those read a review article (63.8% versus 49.0%; p=0.07).

**Discussion and Conclusions:** This study, involving family physicians who regularly discuss and reflect on issues in clinical practice in small peer learning groups, provides evidence that pre-testing influenced knowledge gain as measured using post-tests. Of greater importance in CPD, results suggest that pre-testing may impact the rate at which family physicians reported having implemented planned practice changes. This impact occurred despite the fact that pre-testing had no significant influence on the number of documented CTC statements.
Conclusion: The use of pre-testing, when linked to educational material for family physicians who already participate in small learning groups, influences knowledge gain and appears to have potential to lead to enhanced clinical practice outcomes. Further study is needed to explore possible impacts with learners in other CPD programmes.


Physicians' perceptions of the value of testing as part of an established continuing medical education program

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Introduction: Using “testing” to facilitate learning is a recognized approach in medical education. Studies have shown testing can influence knowledge indirectly through motivation and directly by enhancing memory. Whether this strategy is effective for continuing professional development (CPD) in health practitioners is unknown. The Canadian Practice-based Small Group (PBSG) Learning Program focuses on identifying the gap between current practice and best practice using evidence based educational material in the context of small group discussions of clinical cases. The focus is on practice change and a practice reflection tool has been used to document planned practice changes, and identify barriers/strategies for practice implementation. This paper will discuss to what extent physicians perceive testing as a valuable activity/strategy to identify gap in knowledge and make decisions to change practice and whether it should be included as part of PBSG Learning Program.

Methods: Family Physicians belonging to a PBSG learning program were recruited across Canada. Prior to discussing educational material as part of their normal learning sessions (which includes documentation of planned practice changes), participant groups were randomized to either complete a web-based pre-test or read a relevant review article. After the learning session, they completed a web-based post-test and documented any planned practice changes on a practice reflection tool. An on-line survey inquired about their perceptions of the value of testing for continuing medical education.

Results: Study participants (n=118) who completed a pre-test performed better on a post-test and also reported more practice changes compared to those who read a review article. Of these participants, 66% (n=78) completed the online survey asking about their perception of the value of testing. In comparison to reading a review article, participants agreed that pre-testing was helpful for identifying gaps in knowledge (89.4% vs. 64.5%), while the review article was more helpful for deciding how to alter practice (55.3% vs. 35.5%). Both were seen as helpful in improving knowledge (60.5% and 67.1%). Participants indicated that small group discussions were seen as helpful in identifying gaps in knowledge (90.7%), improving knowledge (93.4%), and deciding how to alter practice (90.7%). Despite the positive results, doing pre-testing as part of regular CPD was met with skepticism. Of participants who commented about the value of testing in CME, a quarter commented about the value of testing, while almost half expressed concerns that testing is limited in its assessment of competence and practice change and that formalized testing could induce stress/anxiety and reduce the enjoyment/participation in CME.

Discussion and Conclusions: Pre-testing not only improves performance on post-test, but also influences the rate at which physicians report practice changes. Physicians participating in a PBSG learning program agreed that pre-testing is helpful in identifying gaps in knowledge and know it improves knowledge. This was not the case for deciding how to alter practice. Physicians may not be aware of the potential effects of testing on practice change, and concerns about testing may override any perceived benefits.

Conclusion: Testing is a good assessment method for determining gaps in knowledge. Implementing pre-testing in an established PBSG learning program will be met with skepticism.