Summary of Investigation on the Timing of the US Medical Examination Licensing (USMLE) Step 1 Examination
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**Question:** What are the implications of delaying the USMLE Step 1 until after core clerkships?

**Major findings**

- **Literature:** In summary the research data on the optimal timing for taking Step 1 is limited, dated and inconclusive. One study recommended, based on its findings, that medical schools consider allowing the USMLE to be taken later, possibly in the fourth year. The other studies which assessed for timing and USMLE examination scores either found no difference in the scores based on when the exam was taken or supported the findings that the closer the time interval is to when the material is learned, the better the performance.

- **Peer institution:** University of Pennsylvania students take Step 1 after core clerkships; their students have 6 weeks free to study and achieve high scores.

- **NBME:** Scores on Step 2 CK are higher for students choosing to take it in time for it to appear in the residency application.

- **UCSF internal data:** Data not appropriate for analysis.

**Background**

The Bridges leadership reported that faculty are considering delaying USMLE Step 1 until after completion of core clerkships in the new curriculum. Specifically, the leadership requested that the Director for Student Assessment and the Director for Program Evaluation to determine whether there was any data about the impact of delayed Step 1 exams on success rates and scores, and whether there was a correlation with timing of Step 1 and previous test taking abilities (i.e. Do some groups do particularly well or poorly with a delayed Step 1 based on prior academic experience?).

To answer this question, we examined the 1) literature on timing of USMLE Step 1 and other related exams, 2) experience at a peer institution with later Step 1 timing, 3) information provided by the National Board of Medical Examiners, and 4) our internal data.

**Results: Literature on Timing of the USMLE Examinations**

Presently 116 (87%) of the 134 US medical schools require students to pass Step 1 to advance to the next level and 112 (84%) of the 134 US medical schools require students to pass the exam to graduate.

Two studies to date analyzed the relationships between students’ Step 1 scores and the timing for taking the test for students. The first study (1), conducted at a single institution, examined performance of students who took the Step 1 exam in weekly intervals between June and July post completion of their second year. Findings indicated that mean student performance on the exam within all time periods were similar regardless of when the USMLE Step 1 was taken. The results of this study were limited to a two-month window from the time the second-year course work was completed.

Another study investigated the performance of students from Years 1, 3, and 4 of medical school on sample USMLE questions to advise about the optimal time to take these tests (4). Approximately 50% of students from the first, third, and fourth years volunteered to take Step 1 and Step 2 CK sample questions without preparation. Passing on both tests was 58% correct. For Step 1, significantly more fourth- than first- and third-year students passed. Expectedly for Step 2 CK, significantly higher proportions of third- and fourth-year students passed than first-year students; however, fourth-year students did not score higher than third-year students. Fourth-year students did best on both tests. These results suggest that clinical experience will likely improve performance on Step 1, and an additional clinical year may improve performance on Step 2 CK. This study was limited by its small number of subjects and use of sample questions rather than a true, high stakes USMLE test.
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Since the research on USMLE Step 1 timing was limited we also examined the timing of Step 2 Clinical Knowledge (CK) exam. Several studies of USMLE Step 2 CK have demonstrated that scores are inversely related to the time interval between the completion of a third-year clinical clerkship and the timing of the comprehensive exam. These studies found that the closer that the discipline-specific clerkship was taken to the test, the higher the subtest score for those discipline specific sections (7-9). These findings were substantiated when looking at overall Step 2 CK scores (5). A study of clerkship subject exams showed that family medicine subject exam scores were improved in students who had completed clerkships in internal medicine, pediatrics, obstetrics and gynecology, surgery and psychiatry prior to taking the family medicine exam, with the largest benefit observed for internal medicine (1).

Results: Discussion with Peer Institution - University of Pennsylvania
At the University of Pennsylvania, students complete the basic science curriculum by December of the 2nd year. They start clerkships in January of the 2nd year; this is a 48 week curriculum that ends December of the 3rd year. Students then take USMLE Step 1. Most students study 6 weeks for Step 1, in Jan/Feb of the 3rd year. They take Step 1 in Feb of their third year after all of their clinical rotations. During the 6 week study period, there are no classes or requirements. The school does not have a Step 1 review course. A few students opt for clinical rotations Jan/Feb of 3rd year and take Step 1 later in the spring.

Most students take Step 2 CK in the late fall of the 4th year since there are many programs who want scores by rank day. Most students study 2-4 weeks for Step 2 CK.

National Board of Medical Examiners (NBME)
The NBME provided information to us about the correlation between Step 1 and Step 2 CK scores. A study of all test takers between 2006 and 2008 who graduated from LCME accredited schools found that Step 1 and Step 2 CK scores were highly correlated. (2) However, the correlation between Step 1 and Step 2 CK scores varied by the timing of Step 2 CK. For students who took Step 2 CK in time for it to appear in the residency application, Step 2 CK scores were higher than predicted based on Step 1 scores. A large proportion of students who scored high on Step 1 deferred Step 2 CK until after the residency application. A student with a high Step 1 score was 1.4 times more likely to take Step 2 CK late; conversely, a student with a low Step 1 score was 4.45 times more likely to take Step 2 CK early.

Results: Examination of UCSF Step 1 Data
UCSF students are required to take Step 1 when their second year ends and before their third year starts. Students are only allowed to postpone the timing of Step 1 if their Essential Core exam performance indicates they require more time to prepare for Step 1 (i.e. Option B students). The Educational Evaluations team examined number of students who took Step 1 between 2007-2012 at a later date but were not Option B. During this time period, there were a total of 34 students who took Step 1 later but were not Option B students. Further discussion with Undergraduate Medical Education office revealed that those students delayed taking Step 1 for personal reasons. As personal reasons are likely to influence the exam scores, we did not further analyze this data.

References

3. Kogan JR. Associate Professor, University of Pennsylvania. Personal communication.


5. Pohl CA, Robeson M, Veloski JJ. USMLE Step 2 CK Performance and Test Administration Date in the Fourth Year of Medical School. Acad Med. 2004; 79; S49-51.


