
Medical Student Attitudes and Perceptions on the USMLE Review

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Background

Student feedback on the proposed changes to the USMLE

Since the formation of the Committee to Evaluate the USMLE Program (CEUP), several avenues have been made available for students to provide feedback. One of these avenues has been through a student representative to CEUP who was jointly appointed by the leaders of the American Medical Student Association (AMSA), the American Medical Association – Medical Student Section (AMA-MSS), and the Association of American Medical Colleges - Organization of Student Representatives (AAMC-OSR). Student feedback, at the time, had been largely limited to the input from the leaderships of the aforementioned organizations who were primarily surveyed by the NBME. Subsequently, students were also given the opportunity to participate in focus groups and on an electronic message board (<http://usmle.org/comprev>). In addition to these opportunities, the American Physician Scientists Association (APSA) felt that there was a paucity of quantitative, objective data aimed at gathering broad student feedback; therefore, APSA undertook the initiative to develop a national survey intended to gauge medical student sentiment in an effort to further help shape and support the dialogue surrounding the Comprehensive Review of the USMLE.

Methods

During the late fall of 2007, the APSA Policy Committee prepared a brief summary of the USMLE review process (Appendix A) based on publicly available information. This summary was intended to help educate medical students about some of the tentatively proposed changes being considered for the USMLE. Students were guided to this summary before being asked to proceed to the 18-question survey (Appendix B). These materials were reviewed by interested parties, some of whom had been involved with the USMLE, in order to ensure the accuracy of the summary and the validity of the survey. During this process, APSA became engaged in a number of discussions with other stakeholders in order to gain a gestalt of the current discussions and concerns surrounding the review of the USMLE.

The survey was designed to gain a more detailed perspective on the issues and concerns raised by medical students and other stakeholders. Demographic data and data on student perception were collected to help determine which factors, if any, impacted students' opinions on the proposed USMLE changes. These factors included but were not limited to students' stage of training, the composition of their medical school curricula, their performance on the USMLE (if applicable), and the teaching or research environment at their institutions. The survey also asked about students' perceived impact the proposed changes would have on their medical school curricula as well as increasing the value of the USMLE as a reliable and valid exam. The use of the USMLE and other

exams as promotion tools was also queried. Although a concerted effort was made to explain the distinction between the simple combining of the two exams versus the integration of their content through the creation of a new test with new materials, it is possible that students may have interpreted this incorrectly.

Q13. What is your opinion regarding the following:

- The tentatively proposed combining of Step 1 and 2 for the purpose of better integrating basic sciences with the clinical sciences?
 - The USMLE exam becoming a pass/fail exam without a numerical score?
-

The survey was distributed almost exclusively by students to other medical students (allopathic and osteopathic) via APSA's membership and its network of Institutional Representatives, the aid of other medical student organizations, medical student council presidents and leadership, and student electronic message boards. In instances when it was not feasible to use the above methods to reach medical students at a particular institution, a school administrator was contacted. Students were directed to a portal website containing the summary in an effort to ensure that students were informed prior to completing the survey.

Email addresses, which were the only pieces of personal information collected, were used to discount multiple submissions (whether intentional or unintentional). Only the most recent submission was used in the data analysis. Prior to analysis, the responses were coded with a unique ID # and de-identified. The data were cross-tabulated to identify joint distribution of variables. Pearson Chi Square tests were performed to analyze the data for associations (SPSS v. 15.0, SPSS Inc, Chicago, IL). The data was charted by percentages within groups to allow for a clearer visualization and interpretation. Tests were run for various subpopulations to identify any population-based dependence on the opinions and perceptions of the respondent student population. With such a large sample size, it is important to note that even small differences could be statistically significant; therefore, the trends and practical significance of the data (i.e. >1%) must be taken into consideration. This report focuses on the overall student population, since few significant differences were found between sub-populations. Analyses for each sub-group are available through supplements to this report.

Results

Demographics

After duplicate responses were removed, a total of 7,280 students participated in the survey from December 9, 2007 to February 19, 2008. This sample of U.S. medical students (N=7,120) represents 8.3% of the overall student population (Table 1). The class year (Table 2) and gender distributions (Table 3) are approximately equally distributed and accurately reflect the U.S. medical student population.

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There were 148 medical schools represented with no single school contributing more than 3% of the total response (median=0.7% per school, SD=0.6%, Table 1). The demographic representations still held true when examining subpopulations (allopathic, osteopathic, etc.).

Table 1: Survey Respondent Demographics

Total Number of Respondents	7,280* (177 schools [†])
U.S. Medical Students	7,120 (8.3% of total student population, 148 medical schools)
U.S. Allopathic Students	5,655 (8.0% of allopathic student population, 123 medical schools)
U.S. Osteopathic Students	1,465 (9.9% of osteopathic student population, 25 schools)
International Medical Students	78

*82 respondents skipped question or did not specify "other"

[†]Includes satellite, branch campuses and joint programs

Table 2: Allopathic Class Distribution Demographics

Class	Respondents (% of students*)	Survey Distribution	National Distribution
M1	1,243 (7%)	24%	26%
M2	1,185 (7%)	23%	25%
M3	1,264 (7%)	24%	25%
M4	1,535 (9%)	29%	24%

*% of national class distribution

Table 3: Gender Demographics

Gender	Survey Respondents	U.S. Medical Student Population
Male	3,309 (48%)	43,435 (51%)
Female	3,626 (52%)	41,486 (49%)

Dependence of Individualistic Factors

(Note: All Figures cited are from “All medical student” analyses, which are further expounded in the Supplementary Material A. Statistical analyses reveal few significant differences between the allopathic and osteopathic student populations (Supplementary Material B and C respectively). In all figures, an asterisk (*) indicated statistical significance (P≤0.05).

Upon examining the overall survey results, more students are opposed to combining Steps 1 and 2, and more are in favor of making the exam pass/fail (Figure 1). There were several factors that were determined to be directly correlated to particular responses, including but not limited to respondents’ stage of training, their performance on the USMLE exam (if applicable), and their progression through the various stages of licensure. In many instances, results from one distinct student subpopulation are replicated in another as is often the case between allopathic and osteopathic, indicating that the opinions are consistent.

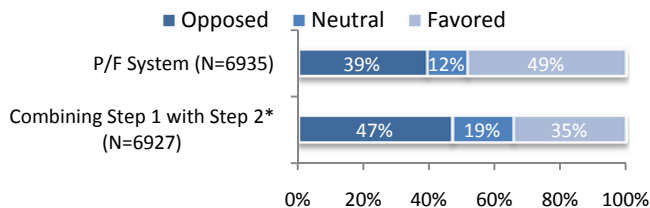


Figure 1: Responses of the sample medical student population with regards to combining Steps 1 and 2 and to transitioning to a pass/fail system.

The more senior students felt more strongly opposed to combining the exams. Students in their last two years of medical school training and those who had taken Step 1 felt more strongly opposed than students in their first two years of training and who had not yet taken Step 1 (Figure 2). This trend continued after having taken Step 2.

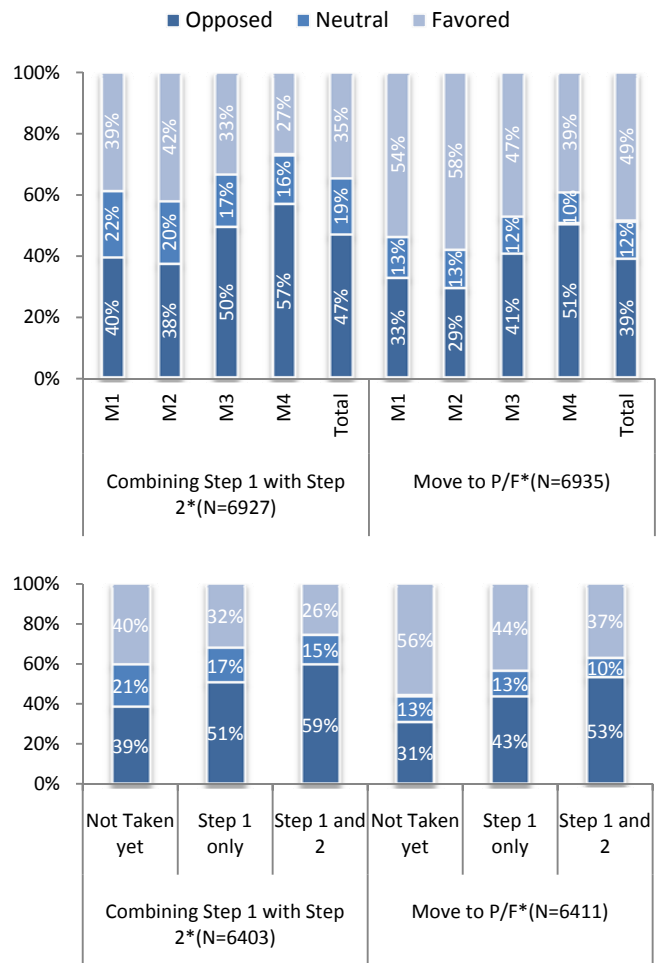


Figure 2: Responses to the major two proposed changes based on a student's stage of training.

As expected, students who believed the current USMLE accurately assessed their knowledge base were more opposed to both proposed changes (Supplementary Material A, Figure 6b). However, of note, the majority of students (>75%) agreed (or were neutral) that the current Step 1 examination did an adequate job of assessing their knowledge base (Figure 3).

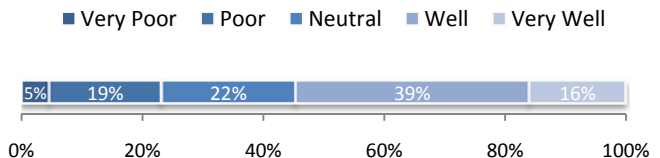


Figure 3: Does the current USMLE adequately measure knowledge base? Medical students, by and large, feel that the current USMLE exam does an adequate job of measuring their knowledge base.

In addition to students’ performance on the USMLE, their responses were directly correlated with their personal

study habits. When students were asked “how focused or balanced your personal study methods between general medical knowledge (or course directed) vs. USMLE-focused content”, it was found that students who spent more of their time studying to the test felt more strongly opposed to both of the tentatively proposed changes.

Another point of concern raised focused on students who had or were pursuing other scholarly activities, such as advanced degrees (PhD, MPH, MS, etc) or other activities that required students to take one or more years off during their medical school training, such as fellowship opportunities to fulfill their career aspirations. Results showed that students who were involved in these particular scholarly pursuits felt as equally opposed as their more traditional counterparts to combining Steps 1 and 2 into a single examination. However, they were more favorable to a P/F system (Figure 4).

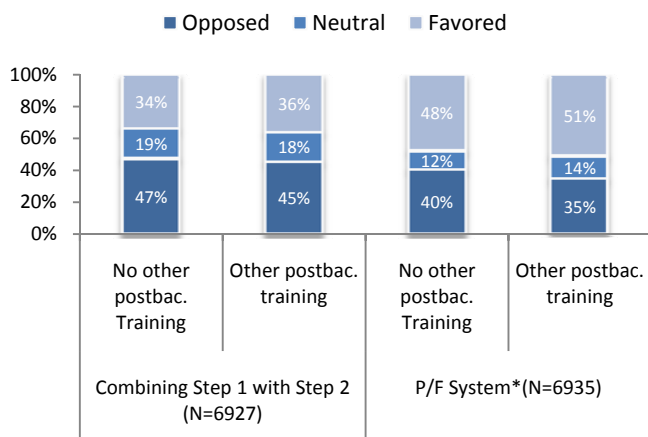


Figure 4: Impact of a student's other scholarly pursuits on their opinions. There was little difference regarding combining the exams, but those with other pursuits were more favorable to a P/F system.

Dependence of Curricular or Training Environment Factors

The medical school curriculum, or training environment, was hypothesized to play a role in students' opinions. For example, it was believed that students who were already under more integrated (basic science and clinical) curricula such as those which use case-based learning or problem-based learning, would be more in favor of the tentatively proposed change to combine the exams. Surprisingly, although an association was observed, no practical association was clearly evident (Figure 5).

In addition to how well their current medical school curriculum integrated the basic and clinical science education, students were asked about their thoughts on whether their current curriculum was more suited towards general medical knowledge or more focused towards teaching to the exam. Survey results indicated that students who believed they were in very course-focused or in very USMLE-focused curricula felt equally opposed to both changes. Meanwhile, students who felt their curricula were balanced between the two were even more opposed to both proposed changes. These results seem to suggest that there may be intrinsic value in both the learning that is

achieved through course-directed instruction and in the learning process needed to study for the USMLE-focused content. Further exploration of this question is needed to gain a clearer understanding of these results (Figure 6).

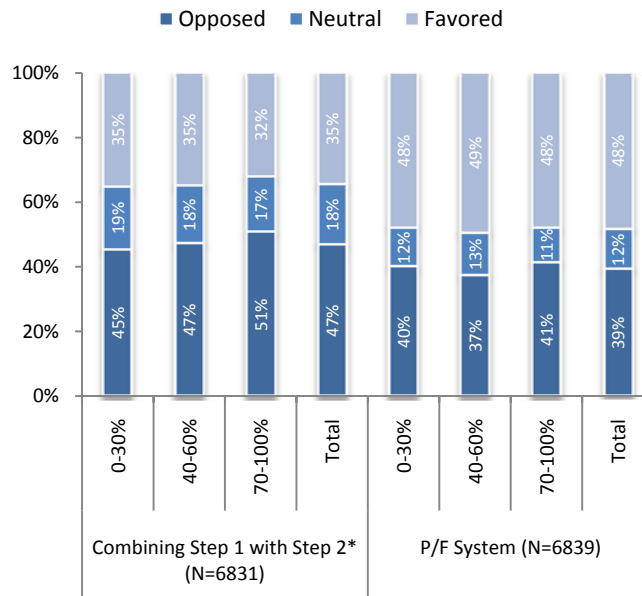


Figure 5: Correlation between the level of integrated basic/clinical science education and students' opinions – no evident trend.

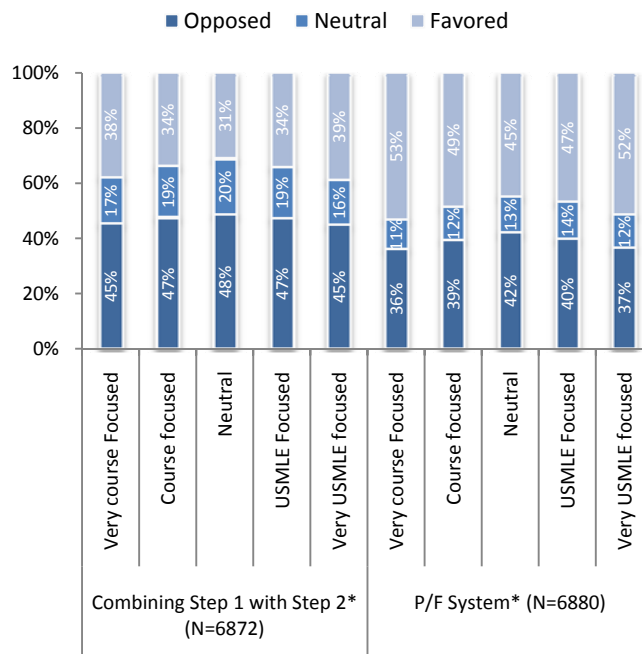


Figure 6: Impact of a school's emphasis on course-directed learning vs. USMLE-based learning on students' opinions.

In addition to an institution's medical school curriculum, it was thought that the value the school placed on basic science research and the importance of medical research in general would influence a student's opinion on the tentatively proposed USMLE changes. In comparing students' perceptions on their schools' focus on research to their responses, no distinction could be made between the various levels of research emphasis or value except for

schools that were deemed to highly emphasize research. This latter subgroup was more strongly opposed to both proposed changes. However, the opinions of students at institutions with a strong NIH research funding record (based on Top 40 2005 NIH Funding of Medical Schools) felt equally opposed to combining the exams, conflicting with the previous subjective assessment based on the student's perception of their schools' research intensity (Figure 7). However, students at research intensive schools (based on the NIH rankings) were more opposed to moving to a pass/fail system, corroborating the previous findings (Figure 7).

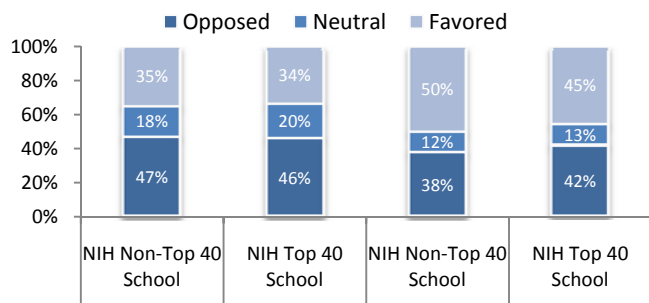


Figure 7: As another measure of judging a school's inclination towards research and basic science, the NIH research funding level was compared to students' opinions.

Students Perceived Impact on Proposed Changes

If the tentatively proposed changes to the USMLE considered in this survey were to be implemented, nearly 90% of respondents believed that his/her school would change its curriculum to adapt to the new exam. As a result to these curricular changes, nearly twice as many medical students (29% vs. 15%) believed that the proposed changes would worsen rather than improve the quality of basic science education (others were neutral). Conversely, students also believed that the proposed changes would improve (33%) the quality of clinical science education (Figure 8).

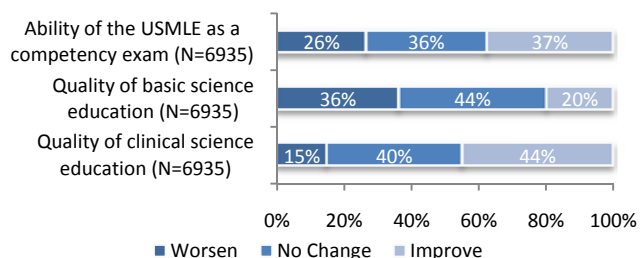


Figure 8: Students' perceived impact of tentatively proposed changes to the USMLE on the quality of their education.

Conclusions

In conclusion, the results of this survey suggest that although students are polarized about the tentatively proposed changes, there are generally more students

opposed to combining the content into a single exam, and more in favor of moving towards a Pass/Fail system. The Step 1 exam in its current form seems to provide some intrinsic value for students. This is supported by students growing more and more opposed to combining the exam as they progressed not only through their medical training but upon each subsequent exam of the USMLE. In addition, a majority of students believe that the current exam does adequately assess their knowledge base.

Although it was initially hypothesized that students who were pursuing scholarly activities such as advanced degrees, abroad experiences, or research experiences would feel more disenfranchised, the results showed very little or no differences in their opinions regarding combining the exams. It was also found that students at schools where the basic sciences might be more valued or emphasized (i.e. research intensive schools) were equally opposed to the integration into a single exam.

Lastly, students believe that the proposed changes would worsen basic science education, enhance clinical science education, and improve the ability of the USMLE to serve as a competency exam. Although the first two might seem contradictory at first glance, it does reinforce the importance of the Step 1 exam and its role in basic science teaching and at the same time recognizes the students' belief that more basic science integration into clinical portion would improve their clinical science education.

Through this survey, APSA has been able to objectively help shed light on the opinions of US medical students with regards to some of the tentatively proposed changes to the USMLE. As one of the largest sources of quantitative, broad student feedback of its kind to date, these results provide insight into students' opinions regarding the current value of the USMLE exam, the proposed changes, and the perceived consequences of the proposed changes.

Acknowledgements

APSA wishes to acknowledge the medical student leaders of AMSA, Student Osteopathic Medical Association (SOMA), AMA-MSS, AAMC-OSR for their input and roles in the general USMLE discussions. We would like to acknowledge Peter Ragusa for his efforts as the National Student Representative on the CEUP by providing a voice for medical students during this critical process.

The authors wish to acknowledge Center for Statistical Training & Consulting at Michigan State University including: Linkan Bian and Ruyn Shi for their assistance in statistical analyses and Dr. Connie Page (Dept. of Statistics & Probability) for guidance. The authors would also like to recognize the members of the APSA Policy Committee who helped craft the survey: Rod Rahimi (Mayo Medical School), Andrew Giustini (Dartmouth Medical School), Ankit Patel (Weill Medical College of Cornell Univ.), Yasser Elshatory (Univ. of Rochester Medical School), and Ben Hodnett (Univ. of Mississippi School of Medicine).

This project was approved by the Institutional Review Board at Michigan State University, East Lansing, MI.

Supplementary Materials

More detailed analysis of the data represented here and of additional data analysis not represented in this report including breakdown by sub-populations: all students, allopathic students, and osteopathic students are available as Supplements A, B, and C respectively to this report.

Appendix A: USMLE Information Summary

The brief summary below (page 5-6) was prepared by the APSA Policy Committee and made publicly available at <http://survey.physicianscientists.org/>. This summary was used to objectively inform survey respondents prior to filling out the survey.

Dear colleagues,

Thank you for your willingness to participate in this important survey. This survey should take you approximately 10 minutes to complete.

Please read the brief summary of tentatively proposed changes to the USMLE (United States Medical Licensing Exam) test structure. [Click here](#) if you would like a more detailed (but still concise) explanation of the changes and links to official USMLE webpages.

Here are the main points: (again, see [below](#) for the details)

- The USMLE is currently undergoing a periodic review to ensure that it is doing what it was meant to do.
- The following have been tentatively proposed:
 - Combine the USMLE Steps 1 and 2 into a single exam that would test BOTH basic science and clinical science competency.
 - Pass/fail could replace the current numerical score. This is separate issue and may be implemented even if a combined exam is not.
- The combination exam would be used for residency application. Thus, the exam would be administered earlier in training than the current Step 2.
- Timeline:
 - The final recommendation will be made by January 2008. After which the implications and feasibility of the recommendations will be studied. The Composite committee which governs the USMLE will make the final recommendation to all major organizations involved in the USMLE for their review.
 - The earliest year the exam would be affected would be 2011. There likely will be a grace period to allow for students who have passed Step 1 to take Step 2.

As a student-driven organization, APSA believes that it is important to generate as much student input as possible on this issue. Therefore, we have designed a survey, Student attitudes and perceptions of the proposed changes to the USMLE, to gather information on some of the key aspects of these proposed changes.

This is a survey that has been designed by students to gather information from students and residents. Our intentions are to present the tentatively proposed changes to the USMLE Step 1/2 exam and survey students opinions and perceptions of the impact of these changes.

[Click Here to access the survey if you are a medical student](#)

[Click Here to access the survey if you are a resident or fellow](#)

Thank you,
Policy Committee, American Physician Scientist Association

A more detailed explanation regarding the changes to the USMLE

Overview:

"[The] USMLE (United States Medical Licensing Examination) assesses a physician's ability to apply knowledge, concepts, and principles, and to demonstrate fundamental patient-centered skills, that are important in health and disease and that constitute the basis of safe and effective patient care."¹ The exam currently exists as three separate "Steps".

- Step 1 assesses understanding and application of basic sciences to the practice of medicine and is typically taken at the end of the second year of medical school.²
- Step 2 assesses application of medical knowledge, skills, understanding of clinical science needed for provision of care under supervision and is typically taken in the fourth year of medical school.²
- Step 3 assesses application of medical knowledge, skills, understanding of clinical science needed for provision of care without supervision and is typically taken during the first or second year of postgraduate training.²

In 2004, the Committee to Evaluate the USMLE Program (CEUP) was formed to review the USMLE—the first such review since the exam's inception in the early 1990s.³ CEUP has been gathering data using surveys and focus groups from relevant parties ("stakeholders") including current medical student, residents, student leaders, institutional and national leaders of graduate education.³ The committee's first priority is to assure the use of the USMLE as a skills and knowledge competency exam. However, it is also recognized that the USMLE has many stakeholders which depend on the exam for other uses (such as residency directors, students, etc). After the information gathering stage, CEUP will make recommendations that will be further evaluated by the organizations that govern the USMLE before implementation.

Themes/Concerns that have arisen in review:

- There are two main points in medical education where the exam should be designed to support decision making in medicine—readiness to begin direct patient care under supervision and readiness to provide patient care unsupervised. The exam is used to measure competency of the student. There is a sense by stakeholders that all "valid, reliable, and practical" methods of assessing competency should be incorporated.³
- The separation of clinical and basic science testing is somewhat artificial. The viewpoint of improving education by better integrating clinical and basic science curricula is prevalent among stakeholders, notably clinical and basic science faculty members.^{3,4}
- Many medical schools rely upon the current format of the USMLE to provide promotion (Step 1) or graduation milestones (Step 2). If Step 1 and 2 are combined, the consensus of stakeholders is that another metric should be created to provide similar assessment.³
- There are conflicting viewpoints by stakeholders regarding the value of providing a numerical score beyond a pass/fail score.³

Proposed changes:

- USMLE Steps 1 and 2 will be combined into a single exam. However, this combination would involve the creation of a new set of questions that test BOTH basic science and clinical science.
- A combination exam will necessitate that the exam be administered earlier in training than the current Step 2 in order for its use in residency applications.
- Pass/fail could replace the current numerical score. This is separate and may be implemented even if a combined exam is not.

Timeline:

- CEUP will deliver its final recommendation by January 2008. After which various USMLE committees and staff will explore implications and feasibility of the recommendations. The Composite committee which governs the USMLE will make the final recommendation to all major organizations involved in the USMLE for their review.³
- Any and all changes would need to be approved by the FSMB (Federation of State Medical Boards) House of Delegates and NBME (National Board of Medical Examiners) members.³
- The earliest year the exam would be affected would be 2011. There likely will be a grace period to allow for students who have passed Step 1 to take Step 2.³

Additional sources of information:

- The USMLE has setup a forum for students to discuss this issue. It is available at <http://comprev.usmle.org/> (registration is required)
- Any of the references below:

1. http://www.usmle.org/General_Information/general_information_about.html
2. http://www.usmle.org/General_Information/general_information_FAQs.html
3. http://www.usmle.org/General_Information/review.html
4. <http://www.usmle.org/img/cru/AAMCFocusSession2007.ppt>

Student attitudes and perceptions of the proposed changes to the

1. Introduction & Disclaimers

The purpose of this survey is to gather information regarding student attitudes and perceptions of the tentatively proposed changes to the USMLE. Demographic information will be collected. Contact information (email addresses) will only be used to detect survey duplication and for distribution of the report generated from this data to interested survey respondents. Contact information will NOT be distributed to anyone, in any form, for any purpose. All survey responses will be deidentified protecting the anonymity of the survey respondents.

The results of this survey may be shared with other medical student organizations, other shareholders in medical education, and others involved in the review of the USMLE exams.

- * 1. Are you familiar with the tentatively proposed changes to the USMLE? If NO, then please visit <http://survey.physicianscientists.org/>

Yes

No

- * 2. Please provide your e-mail address:

Note: This information will be stored separately and NOT with your survey (i.e. we will have no clue what answers go with this email address). This is only used to make sure the survey is not being skewed.

3. Would you like to receive a copy of the report generated from this survey?

Yes

No

Student attitudes and perceptions of the proposed changes to the

2. Demographics

* 4. Please tell us which medical school you attend:

Other (please specify)

* 5. Gender:

Male

Female

* 6. What year of your training are you currently in? (select all that apply)

M1

Research Training (non-PhD)

M2

PhD Training (G1-G2)

M3

PhD Training (G3+)

M4

Please indicate other training you have or are pursuing below: (MPH, MBA, JD, MS, etc.)

7. Which Step of the USMLE have you taken? (select all that apply)

I do not plan on taking the USMLE

I have taken Step 2 CK

I have yet to take a USMLE Exam but will

I have taken Step 2 CS

I have taken Step 1

Other (please specify):

8. How well do you feel your USMLE score reflected your knowledge base?

Not

Very Poor

Poor

Neutral

Well

Very Well

Applicable/Have not
taken it

And why?

Student attitudes and perceptions of the proposed changes to the

3. Perceptions on school's current medical curriculum

9. How much of your school's curriculum consists of case-based/PBL-style instruction (PBL=Problem Based Learning)?

	0%	20%	40%	60%	80%	100%
Please choose a percentage:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)/Comments?	<input type="text"/>					

10. How much focus on research does your medical school emphasize?

Not focused
 Little Focused
 Focused
 Very Focused

How so? (specific details) or other comments?

11. In your opinion:

	General medical knowledge/Course focused	Neutral	USMLE focused
How focused was (or is) your personal studying specifically directed towards the USMLE Step 1?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How focused has your school designed its curriculum to specifically emphasize material that appears on the USMLE Step 1?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Please share any thoughts or details:	<input type="text"/>		

12. How well do you believe your school integrates basic science with clinical science curriculum?

Very Poorly
 Poorly
 Neutral
 Well
 Very Well

Any particular reasons why?

Student attitudes and perceptions of the proposed changes to the

4. Perceptions on proposed changes of the USMLE and its potential impact

13. What is your opinion regarding the following:

	Very Opposed		Neutral		Very Favored	
The USMLE exam becoming a pass/fail exam without a numerical score?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The tentatively proposed combining of Step 1 and 2 for the purpose of better integrating basic sciences with the clinical sciences?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Any comments?

14. If the USMLE Steps I and II-CK exams were to be combined, as is tentatively proposed, how much do you believe your school would have to alter its curriculum to prepare students for those changes?

Unsure
 No Changes
 Minimal Changes
 Major Changes

Please explain:

15. Do you perceive the tentatively proposed changes in the USMLE will improve or worsen your training in the following areas:

	Worsen		No change		Improve	
Integration of basic science and clinical medicine:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of clinical science education in medical school:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability of the USMLE to examine a student's potential for success in the hospital:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of basic science education in medical school:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)/Comments?

Student attitudes and perceptions of the proposed changes to the

16. Are the USMLE exams used for any of the following purposes at your institution?
(select all that apply)

- Passing of Step 1 is required for advancement to M3 year
- Passing of Step 2 (CK and/or CS) is required for advancement to M4 year
- Passing of Step 2 (CK and/or CS) is required for graduation

Other (please specify)/Comments?

17. How much are the NBME subject basic science or clinical science exams used at your medical school?

	Not at all		A few subjects		Very Often
Basic Science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clinical Science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Any comments?

18. Any additional comments or concerns?

Thank you for your time. Your opinion counts. Have a nice day!

2007-08 Policy Committee, American Physician Scientist Association

The American Physician Scientists Association (APSA) is a national organization dedicated to addressing the needs of future physician scientists with respect to their training and career development.

Find out more about who we are and what we are about at <http://www.physicianscientists.org/>