Improving Student Assessment in the Pre-clinical Years

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Motivation

- Students desire high USMLE Step 1 scores.
- Current fail rate is of concern.
- Test writers deserve guidance.

Item Format

- USMLE-style exams to improve test scores
- Other test-taking skills not important
- Change comes at little cost
- Yes to change in exam format
- USMLE-style exams may help reduce test anxiety.

Exam Timing

- Majority of students finish exams quickly already
- Slow students identified before they take the USMLE.
General Description

Test Tasks on Major Exams:

- interpret graphic and tabular material,
- identify gross and microscopic pathologic and normal specimens, and
- apply basic science knowledge to solve clinical problems.

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The majority of questions require the examinee to interpret graphic and tabular material, to identify gross and microscopic pathologic and normal specimens, and to solve problems through application of basic science principles.``'

Prompt Attributes

Each prompt will be composed of a clinical or experimental vignette followed by 1-4 questions.

<table>
<thead>
<tr>
<th>Vignette Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 60-70 words</td>
</tr>
<tr>
<td>• Authentic</td>
</tr>
<tr>
<td>• Graphics, tables, images or schematics</td>
</tr>
<tr>
<td>• One or more pieces of relevant information</td>
</tr>
<tr>
<td>• Extraneous information OK, False information prohibited</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify or recall basic information (Bloom level 1)</td>
</tr>
<tr>
<td>• Interpret information in the vignette (Bloom level 2)</td>
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<tr>
<td>• Apply basic information to the scenario (Bloom level 3)</td>
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Response Attributes

- 3-11 response options\(^a\)
- Short (1-15 words)
- Lettered (A, B, C...)
- Alphabetical or logical order
- Distractors may be partially correct
- **There is only one best answer**

\(^a\) > 5 response options possible with ExamSoft™ CBT
Prohibited Item types

Prohibited item types include, but are not limited to, all of the following:

- Questions asking students to choose the *worst* answer.
  - All of the following are true *EXCEPT*
  - Which of the following is *FALSE*

- Questions asking students to select *multiple best* answers.
  - Answer choices B & C are correct
  - All of the above

- Questions that stress test-taking skills not represented on the USMLE (e.g. matching, ordering)
Sample Item

A fifty-year-old man presents to the Emergency Department with sudden, severe, left-sided abdominal pain. Upon further examination, you conclude that he is suffering from an obstruction of his abdominal vasculature, cutting off blood supply to part of the colon.

1. Based on your knowledge of blood supply in the abdominal cavity, you determine that an embolism is most likely in his:

A. Celiac artery  
B. Inferior Mesenteric Artery  
C. Inferior Vena Cava  
D. Left iliac artery  
E. Superior Mesenteric Artery
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2. Acute mesenteric ischemia is most often caused by occlusion of the:

A. Celiac artery
B. Inferior Mesenteric Artery
C. Inferior Vena Cava
D. Left iliac artery
E. Superior Mesenteric Artery
Exam Pacing and Reporting

Two Pacing Modes

**Extended Time**
- 90 seconds per item
- 40 items per hour
- BUSM I, semester 2

**Regular Time**
- 72 seconds per item
- 50 items per hour
- BUSM II

**Grade Reporting**
- All major exams in all courses
- Median and Interquartile Range
- Mean, Standard Deviation, etc.