



Tomorrow's Doctors, Tomorrow's Cures®

MR5

The 5th Comprehensive Review of the MCAT Exam

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MCAT is a program of the
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Topics to be covered

- What does the current MCAT measure?
 - What is the MR5 project?
 - What have we accomplished so far?
 - What's next for MR5?
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- What would you like us to know?

What does the current MCAT exam measure?

- Section 1: Physical Sciences (PS)
- Section 2: Verbal Reasoning (VR)
- Section 3: Writing Sample (WS)
- Section 4: Biological Sciences (BS)

Section 1: Physical Sciences

- Designed to assess examinees' introductory-level knowledge of physics and general (inorganic) chemistry concepts and the application of these concepts to solving scientific problems
- 52 multiple-choice items per form:
 - 39 passage-based items (7 passages)
 - 13 “stand-alone” items
 - 4 options per item
 - 70 minutes of testing time

Section 1: Physical Sciences

- Cognitive skills assessed
 - Items designed to require one (or more) of 7 different cognitive skills
 - 4 of these skills require “higher-order” cognitive processing of scientific information

Section 1: Physical Sciences

- Cognitive skills taxonomy
 - Identification of Main Ideas
 - Identification of Components in a Situation and Relationships Among Them
 - Seeking Clarification
 - *Hypothesis Testing*
 - *Evaluation Processes*
 - *Flexibility and Adaptability in Scientific Reasoning*
 - *Reasoning Using Quantitative Data*

Section 2: Verbal Reasoning

- Designed to assess examinees' ability to understand, evaluate, and apply information and arguments presented in prose text
- 40 multiple-choice items per form:
 - All items are passage-based (7 passages)
 - Passages drawn from the Natural Sciences, Social Sciences, and Humanities
 - 4 options per item
 - 60 minutes of testing time

Section 2: Verbal Reasoning

- Cognitive skills taxonomy
 - Comprehension
 - *Evaluation*
 - *Application*
 - *Incorporation of Information*
- All but Comprehension require “higher-order” cognitive processing of passage information

Section 3: Writing Sample

- Designed to assess examinees' ability to develop a central idea, synthesize concepts, present ideas cohesively and logically, and write clearly
- Two open-ended essay prompts per form:
 - Each essay separately timed
 - 60 minutes of testing time (30 minutes per essay)

Section 4: Biological Sciences

- Designed to assess examinees' introductory-level knowledge of biology and organic chemistry concepts and the application of these concepts to solving scientific problems
- 52 multiple-choice items per form:
 - 39 passage-based items (7 passages)
 - 13 “stand-alone” items
 - 4 options per item
 - 70 minutes of testing time

Section 4: Biological Sciences

- Cognitive skills assessed
 - Same as for Physical Sciences section

What is the MR5 project?

- In standardized testing, periodic reviews of examinations are considered best practice.
- Fifth comprehensive review of MCAT since it was first administered in 1928.
- Last full-scale review was completed in 1990.
- The AAMC has appointed a 22-member committee to recommend changes that keep pace with advances in medical education and practice.
- Premature to say how long the review will take.
- 2014 is the earliest a new test would be introduced.

MR5 Committee charge

The committee is charged with reviewing the current MCAT exam and recommending changes that are likely to increase its value to medical school admissions committees.

MR5 Committee charge (cont'd)

In fulfilling this charge, the committee will consider:

- Knowledge, skills, and other characteristics that admissions committees look for in their applicants,
- Full range of information that already is available in student selection; and
- State-of-the-art and professional standards in admissions testing.

MR5 Committee charge (cont'd)

In completing the review, committee members will consider recent calls for new information about applicants' mastery of:

- Natural sciences content;
- Behavioral and social sciences and humanities content; and
- Personal competencies.

MR5 Committee charge (cont'd)

Committee recommendations will provide the AAMC with a framework for developing an updated MCAT exam and/or other tools for student selection.

Who are the MR5 Committee members?

- Current and former medical school deans
- Admissions, educational affairs, diversity, and student affairs officers
- Basic and clinical sciences faculty
- Pre-health advisors and other baccalaureate faculty
- Medical student
- Members of the AAMC-HHMI Scientific Foundations for Future Physicians Committee; the AAMC Expert Panel on the Behavioral and Social Sciences; and the AAMC Holistic Review Project

What are the current plans?



***We will be gathering stakeholder input throughout all phases of this project.**

What have we accomplished so far?

- During the first year, committee members and staff solicited input on the future exam at more than 25 meetings, including:
 - Annual Meetings of the AAMC, the American Association of Colleges of Osteopathic Medicine, and the Canadian Conference on Medical Education
 - Spring 2009 Meetings of the Northeast, Southern, Central, and Western Association of Advisors for the Health Professions
 - Introductory Physics for the Life Sciences Workshop (George Washington University)

What have we accomplished so far?

- We have also solicited input and incorporated recommendations from:
 - Scientific Foundations for Future Physicians (SFFP) Committee
 - Expert Panel on the Behavioral and Social Sciences
 - Holistic Review Project Committee

What have we accomplished so far?

- Also gathered input and data:
 - Surveys about the way admissions officers do their work and their priorities for future testing
 - Surveys of academic affairs officers about the knowledge, skills, and characteristics that are important for success in medical school
 - Analyses of data on the current MCAT exam
 - Predictive validity
 - Acceptance rates
 - Subgroup differences

What's next for MR5?

- The committee's second year is focusing on:
 - Surveys of candidate topics for the future test
 - Natural sciences
 - Research methods and Statistics
 - Behavioral sciences
 - Writing Sample information
 - Innovation lab to explore possibilities for measuring personal and professional characteristics

Medical School Natural Science Content Survey: Purpose

- To collect data from medical schools about the degree to which students' knowledge of various natural science topics and subtopics, at the time of entrance into medical school, is important for mastery of their schools':
 - Current curriculum: and
 - Curriculum as it is likely to be 5 years from now.

Medical School Natural Science Content Survey: Format and content

- On-line survey
- There are five (5) science content surveys:
 - Biology
 - Chemistry (includes both General and Organic Chemistry content)
 - Physics
 - Biochemistry
 - Cellular/Molecular Biology

Medical School Natural Science Content Survey: Format and content

- The natural science surveys reflect the input of the SFFP committee and its report in two important ways:
 - All of the competencies identified by the SFFP committee are represented in the content being surveyed, and
 - The inclusion of the future ratings recognizes the possibility of the curriculum reform suggested by the SFFP committee (and others)

Undergraduate Natural Science Content Survey: Purpose

- To collect data from undergraduate faculty about the emphasis they place on various science topics and subtopics in undergraduate courses:
 - As they are taught now; and
 - As they are likely to be taught 5 years from now (again, recognizing advancements in the sciences and the on-going efforts concerning curriculum reform occurring nationally and on individual campuses)

Undergraduate Natural Science Content Survey: Sampling Plan

- **Institutions:**

- 290 U.S. and Canadian undergraduate institutions
 - Stratified by: public vs. private; region
- Historically black- and Hispanic-serving institutions have been oversampled

- **Participants**

- Altogether, more than 3,000 undergraduate faculty are being invited to participate in the survey.

Undergraduate Natural Science Content Survey: Format and content

- On-line survey
- There are five (5) science content surveys:
 - Biology
 - Organic Chemistry
 - General Chemistry
 - Physics
 - Biochemistry and Cellular/Molecular Biology
- Each survey also has a section on:
 - Mathematics/Statistics/Methods topics

Undergraduate Natural Science Content Survey: Faculty Participants

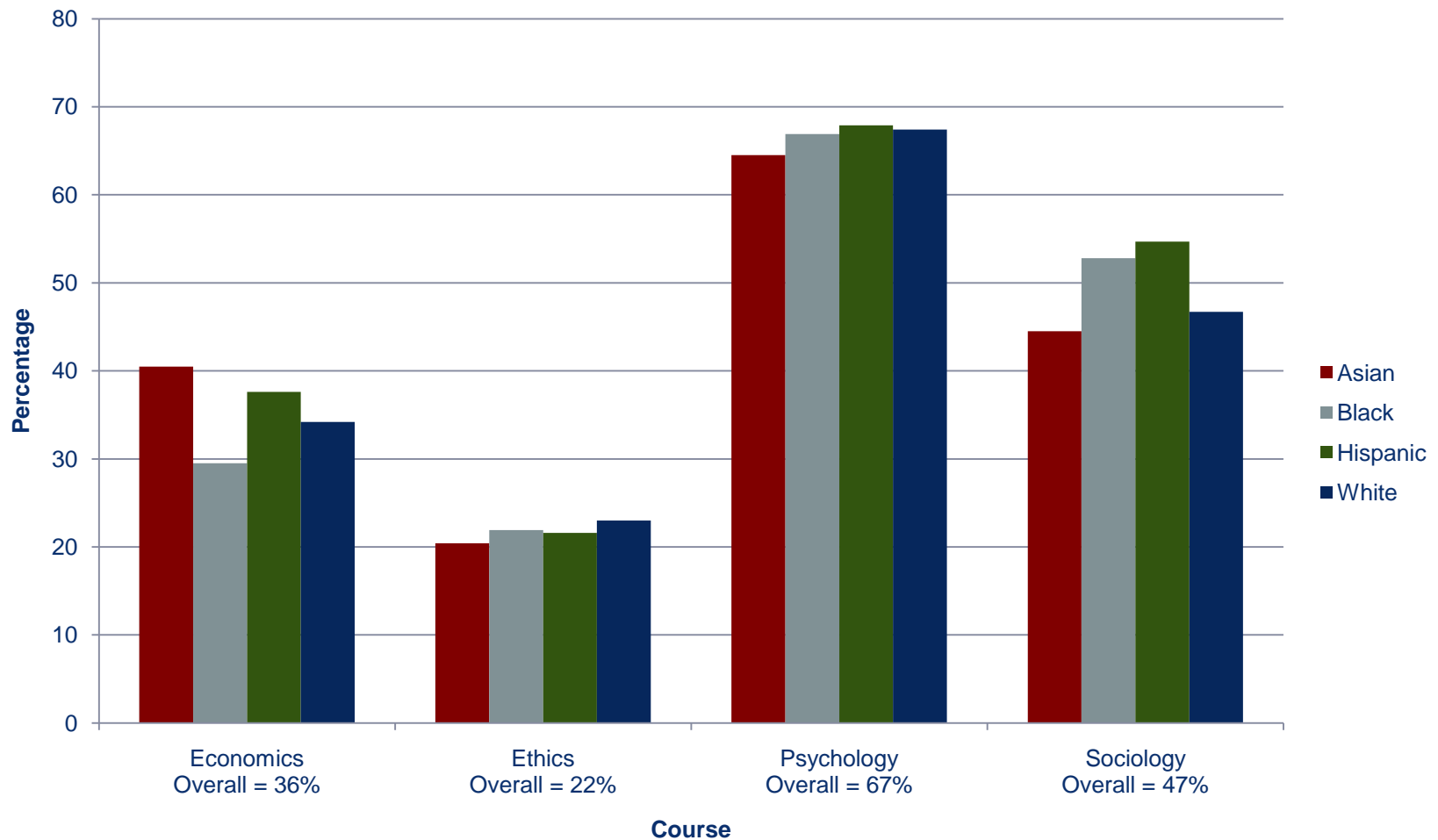
- Up to 13 faculty members from each school are being invited to participate.

Surveys	Respondents
Biology	2 Introductory Biology professors
Biochemistry & Cellular/Molecular	2 Biochemistry professors 2 Cellular/Molecular professors 1 Introductory Biology professor
Organic Chemistry	2 Organic Chemistry professors
General Chemistry	2 General Chemistry professors
Physics	2 Physics professors

Behavioral and Social Sciences as Preparation for Medical Education

- Current status:
 - 16 Allopathic Medical School require at least one course in social and behavioral sciences.
 - No behavioral or social science content knowledge expected on current MCAT.
 - Incorporated into Verbal Reasoning section as “stimulus questions”.
 - Ethics and diversity issues may be included as “prompts” in writing sample.

Behavioral and Social Sciences Course-Taking Patterns



Behavioral and Social Sciences: Possible New Content Areas

- New content areas being considered include:
 - Behavioral Sciences
 - Research Methods
- Undergraduate and Medical School surveys to be conducted in 2010
- Focus on competencies and not courses being considered

Behavioral and Social Sciences: Stimulus Questions

- New areas for stimulus questions are being considered:
 - Ethics
 - Public/Population Health

Writing Sample

- Designed to test written communications
- Included for first time after MR4
- Graded with letter scores
- Not available directly to admissions committees

“Toolkit”

- Communications skills – looking for tools to assess verbal communications
- Personal characteristics- looking for tools to assess personal characteristics
- May not be part of MCAT but available as part of admissions process

MSOP- Expert Panel on the Behavioral and Social Sciences

- Considering:
 - Competencies for entering medical students
 - Medical School content build on entering competencies
- To be completed Fall 2010

MSOP Expert Panel Charge

- MSOP is an AAMC initiative designed to reach general consensus within the medical education community on the skills, attitudes, and knowledge that all graduating medical students should possess.
- This 10-member expert panel is convened to deliberate and offer recommendations on the learning objectives and educational strategies for the behavioral and social sciences for all medical students.

MSOP Expert Panel Charge (cont'd)

- In fulfilling this charge, the committee will address two fundamental questions:
 - What should medical students learn about the behavioral and social sciences (learning objectives), considering what is most important for entry to medical school and to learn during medical school?
 - What kind of educational experiences will allow students to achieve those learning objectives?

The MSOP Final Report will:

- Define entry-level and graduation competencies
- Describe educational experiences that speak to the desired objectives
- Address the following:
 - Interconnections between competencies
 - Interrelations between the behavioral and social sciences and natural sciences
 - Mechanisms for curricular and cultural change
 - Impediments to reform
 - Approaches to public engagement

Behavioral and Social Sciences and Medical School Admissions-Summary

- Being considered as content areas for MCAT emphasis on behavioral sciences
- New ways to assess written and oral communications skills being considered
- Focus on toolbox that goes beyond the MCAT exam
- MSOP designed to provide expert advice on competencies for entering medical students integrated with medical school competencies

Communication Plans

- Continue an aggressive information-gathering campaign
- Continue seeking input through conferences and meetings, newsletters, websites, and other means
- Regularly provide up-to-date information about plans, progress, and direction of MR5
- Committed to providing undergraduate faculty with information, time, and tools to help students prepare
- Provide admissions officers with needed information to refine selection systems if warranted

Your Turn

The MR5 Committee would like to hear from you about:

- Research that should inform the committee's thinking;
- Things going on in your disciplines that are important for the committee to know;
- Things going on at your campuses that might shape the committee's thinking;
- Initiatives and changes on the horizon that might bear on the future test; and
- Anything else that you think is important for the committee to take into consideration.



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