ABFM Study Guidance

More than two years ago, the ABFM Chief Executive Officer, Dr. James Puffer, instituted a research program to provide a mechanism that would assist candidates in performing well on examinations. As part of this ongoing project, those candidates who had failed an examination and who called ABFM for advice were routed to the psychometrics department to speak to staff about how to overcome the obstacle of the examination.

Over that two-year period, we have continued to work with any examinees who expressed interest in improving their scores. The information relayed during interactions with more than 200 physicians who were in the process of studying appears to have been quite effective. By the end of the December 2005 exam cycle, there was sufficient data about what works to put this information online for general use by all exam candidates. The information in this document is a summary of the information originally provided to them, as well as additional information we have gained in the process so far.

We believe the materials provided to these physicians, and examples of their own effective study strategies will be useful to you. In general, we will not recommend or endorse any specific organization's study program, because we simply don't have sufficient evidence to say that one program is better than another. However, when useful study materials are empirically identified, they will be included in the list.

From the data gathered to date, it is clear that nearly any high-quality, comprehensive study material can be used effectively. The key ingredient in exam success is scheduling regular time to study, rather than buying any particular study material. With the growth of online journals and medical resources, medical information is relatively inexpensive. Because of this, high-quality study materials themselves are often interchangeable.

…<u>However, there is still no substitute for a well-designed and executed study plan.</u>

In this program, you will find several approaches described for performing well on the exam. For example, "Test-Taking Strategies" addresses improving your decision making during the examination, whereas "General Study Strategies" outlines a long-term method for keeping your test scores high without having to study prior to the exam. So, while some of this material may not apply to your particular case, it is expected that various parts will be useful to every candidate. We have further plans for an online, interactive component to aid studying which is under development presently.

We at ABFM wish you every success in your endeavor to maintain and improve your knowledge of our specialty. We hope the materials we have included will prove useful in guiding your studies. Good luck!

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A Call for Mutual Assistance

Much of the information in this program came from examinees who first failed the exam, then succeeded on the next exam. We are grateful to them for sharing their experiences for the benefit of their peers. We are also inspired by their determination to improve their medical knowledge despite setbacks. The average participant in the initial pilot study that led to this material raised their Composite Score by more than 100 points! That corresponds to a movement in knowledge from the bottom 10% of examinees to above the 40th percentile.

If you are a current diplomate and your score has improved dramatically from one exam to the next (Composite Score improvement of more than 70 points), we would be very interested in hearing what you did to study for the exam. We will compile this information and share it with your colleagues as evidence on successful methods becomes available.

Please take a moment to write us and include the following:

a) Title of specific materials
b) Cost of specific materials
c) Hours per week spent
d) Total duration of study (weeks to months)
e) Tips and comments regarding what worked well (e.g. study scheduling tips, et cetera)

You can email: JasonR@TheABFM.org , or write to Jason Rinaldo, Ph.D., 1648 McGrathiana Parkway 5th fl. Lexington, KY 40511.

General (Long-Term) Strategies for Score Improvement

You shouldn't count on a review course alone to maintain your medical knowledge, or to achieve passing test scores. You will also want to consider ongoing learning activities that you can do at home, during slow times in the office, or while on call. Consider scheduling time on at least a weekly basis to read generalist medical journals relevant to what we do as family physicians (e.g. *American Family Physician* or the *Journal of Family Practice*.)

Studying is most likely to be effective (i.e. memorable) if you keep specific clinical practice cases in mind while studying material that applies to those cases, assuming that your practice robustly represents the breadth of family medicine. Likewise, referring back to an article after seeing a tricky patient will also greatly aid retention. This recommendation is consistent with decades of research in cognition and education.

On the other hand, if you work within a more narrowly defined population (such as Emergency Medicine, Sports Medicine, or Industrial Medicine), or don't have a clinical practice at all, then you have an additional challenge. If you work in one of these settings, a systematic approach to reviewing the spectrum of family medicine becomes all that much more critical in preparing to take the Board examination. Our medical knowledge fades without periodic re-exposure (that's why we call what we do the "practice of medicine"!)

As physicians mature in their professional roles, many tend to narrow the focus of our practices, aside from working in a narrowed field such as are mentioned above. Although not as problematic as entering a subspecialty, this too can put you at a disadvantage when taking an exam that measures your knowledge over the breadth of family medicine. The implication is that your study habits and readings will need to include those areas that you don't include in your practice any longer, as well as the common entities that you see every day.

Specific (Short-Term) Study Tips

1. As mentioned in the introduction, there is no substitute for a well-designed and executed study plan. Aside from this, there is no substitute for having an *adequately* designed but well-executed study plan…

2. If you consider taking a review course, choose one that is challenging and that requires your active participation. Review courses that involve thorough, detailed study and active reading are more likely to help you acquire the knowledge you need to succeed on the examination. This approach obviously requires more time and effort, but will typically produce a larger gain than a procedure that requires less elaborate cognitive activity. For example, you might consider enrolling in one of the home-study programs offered by a number of family medicine organizations.

3. Data from successful examinees suggests that seminars are not very useful. Lecture-style reviews primarily involve passive listening, which doesn't work as well to acquire new information or update your knowledge base. They are unlikely to relay information at the level of detail that specific exam items measure. An item is likely to be written with specific materials in front of the item writer to capture very specific knowledge about a particular treatment circumstance. So, try to study material that is at the same level of specificity that the items are focused. (The In-Training Exams that we make available for free on our website will provide a large number of specific items. Although these items are ineligible to be used on an actual exam because they are made public, they are written in the same way and by the same item writers as the actual exam.) The best study information will be at the level of specificity found in textbook or journal readings, although it may certainly be in audio tape or another format as well. In fact, audio tapes have been very useful for physicians who have time to listen repeatedly (during commuting, jogging/exercise, et cetera).

4. Some physicians take the approach of simply responding to hundreds of questions similar to those on the exams, and looking up the right answers. This results in VERY LITTLE improvement (around 30 points). This really should come as no surprise, because, if answering questions was a good way to acquire medical information, then medical school training would be boiled down to a lengthy quiz. Gaining points on the exam involves studying medical information, and there is a strong dose-response relationship. The same methods that worked for you when you originally acquired this information in your training are likely to be the best for you now. Also, note that items made public through the In-Training exams do not appear on the (re)certification exams, comments that you may find online notwithstanding. Unfortunately, physicians will occasionally spend a great deal of effort and time answering In-Training questions in hopes that they learn the answer to items that will appear on the exams. On the other hand, medical content will often naturally overlap from items used on both exam types, so learning the material required to answer an item correct on the In-Training may be useful for answering an item on the (re)certification exam simply because of similar medical

content.

5. Use the In-Training Exams as a pre- and post-test (to mark your starting point prior to studying, and then to see if your study schedule is effective). Try to take it according to the standardized timing and instructions. Grade yourself using the answers posted in the Critique. The post-test measure should not be done too late to make changes if needed, but not so early that improvement is unlikely. Changes are likely to be noticeable within one month of regular studying, unless your initial performance was well above average. https://www.theabfm.org/residency/ite.aspx

Here are some typical answers regarding "what worked" from physicians who successfully improved their scores. On average, these strategies raised scores by more than 100 points. Please keep in mind that these are "representative" descriptions of the people who passed after having failed a prior exam. There was considerable overlap in their general procedures, and these 5 excerpts capture nearly all of the general approaches. There was much more variety in the specific reading materials used than is represented here, but the deciding factor was setting up a structured plan of study. The quotes are listed in descending order of (representative) score improvement.

190 point improvement: "...Connecticut/Ohio Core Content Review. ...completed the 2004 eight module series in the 3 months between September and December. I took copious notes on the material and during the last two weeks before the exam, reviewed and re-reviewed my notes, and made selected flash cards from those notes. In addition, I read aloud, recorded and yellow-highlighted articles for the AFP Journal. I then would listen to these recorded articles [during driving and other parts of the day]."

"...meeting once a week with a small study group of four of my colleagues, and picking relevant topics and pertinent articles, along with questions that helped me to stay focused."

[Bought some review video tapes]. "I was able to see most of the tapes. I also used a family practice text book that I would use for reference. I would look things up and tried to summarize the lectures."

"Without a doubt the most valuable item was (were) the practice tests". [Explains that they promoted focus on studying and made him feel more confident that studying actually produced improvement]. The next pearl was paying attention to [critical] phrases like "at this time", etc in patient management questions."

40 point improvement: "I did the last three years of In-Training Exams, and then went to FamilyDoctor.com or FamilyPractice.com (or something like that) and did their 2000 questions. I actually did 3000 questions, so I went through them 1.5 times. Then I used the ITE's to hone in on the type of information in the questions. I also had a particularly bad showing on the first exam, and my life became calmer

and I think that helped too." [parentheses in original].

Other examples of successful study strategies:

1. Sacrificing the daily commute (short-term). If you have at least a 30-minute one-way commute to work, then this time can be used as part of a study plan. Score improvements of as much as 200 points have been gained with this method. Successful application of this method has involved audio recordings of textbook or journal readings that physicians produced themselves, as well as purchased audio tapes. The extensive rehearsal and the frequency of study are the major strengths of this study method. Other time periods in which your mind is not otherwise focused may also be useful, such as during exercise.

2. Journal readings (long-term). The last 5 years of two general Family Medicine journals provides a very thorough, but well defined set of study materials. *American Family Physician* or the *Journal of Family Practice* are good exemplars, although other journals may be equally effective. The journals mentioned above are both available without cost (see website links below). (Please don't take their mention to mean that they are preferred). You or your workplace may already have a subscription to other relevant high-quality journals.

   If you choose to use journals, some articles, such as reviews and treatment guidelines will be more relevant, so they should be studied more closely. On the other hand, some articles might safely be ignored. Starting three months before an exam, it is possible to review and summarize two journals per day, since there are typically very few (4-5) studies per journal, of which only half might be relevant. If you were to summarize relevant articles in a few sentences on a note card or electronic file, you may save considerable time assembling exam review materials later.

Steps to Creating an Effective Study Plan

Step 1: Know what material is going to be on the exam. Consult the ABFM website to find out more about what material is represented on the examination, and in what proportions of the exam. This link provides the exact map of how items are selected by content for inclusion on the examination. It is worth knowing during your studies.

Step 2: Identify your level need for study. There are two major considerations.

First, how did you perform on your last standardized ABFM Family Medicine exam (whether Cert/Recert/In-Training)? If you scored at or above the 50th percentile, then there is lower risk for failing a subsequent exam. (Not zero risk, just lower! Studying is recommended for ALL candidates).

Second, do you practice broad-based family medicine, or is your practice relatively narrow? For example, those who move into emergency medicine, industrial medicine, or administrative positions are in a much higher risk group. Typically, scores drop by more than 100 points within 3 years of taking a narrowly focused or non-clinical position. The longer the time away from family medicine, the more knowledge attrition (disuse atrophy) can be expected.

- If you are in a high-risk situation, then you may need many more hours per week of study than a physician who is not. If you last scored below the 50th percentile **and** have narrowed your practice, then you may need a substantial study effort (perhaps 10 or more hours per week).

Step 3: Identify how many hours you will need, would like, or will be able to study. If you are seeking serious score improvement (>100 points, or if you are retaking the exam), then up to 10-14 hours per week, for three or more months may be needed. Although this may seem daunting, consider that many physicians spend 10 hours per week commuting. If your schedule is already tight, then one hour in the morning and a half-hour in the evening may still be extractable. Also, be reasonable in the number of consecutive hours of study that will be useful for you, because diminishing returns usually set in before a couple consecutive hours of study. Thus, two hours of focused studying per weekday is likely to be much more useful than a block of 10 hours each Saturday.

Step 4: Evaluate how the designated amount of study will be fit into your weekly schedule. If feasible, notify those around you (family, colleagues) of the schedule change so that this time can be as interruption-free as possible. Also, consider whether the hours sacrificed are going to add stress to your schedule to the extent that studying becomes less effective. If there is insufficient time, you might consider putting off taking the exam until the next administration cycle (beginning in either July or December).

Step 5: Identify and obtain the materials you plan to use. As mentioned previously, there are many sources of high quality study material available. Some of these are available for free online. Do not spend an inordinate amount of time seeking out materials in hopes of finding the "magic bullet", because it is clear from data that MANY sources can be effectively used for study. To date, no material appears to be both "quick and easy" and effective.

Consider these free resources:

a) If you are already a participant in Maintenance of Certification for Family Physicians (MC-FP), then the Cochrane Library of evidence-based medicine is already available to you through the ABFM.

b) For those with a university or major hospital affiliation, check whether the library will allow staff online access to electronic journals.

c) Some material and journals are available for free online, such as American Family Physician (http://www.aafp.org/afp.xml), and Journal of Family Practice (issues prior to last 6 months are free: http://www.jfponline.com/).

d) If you have access to a medical library, then the need to spend money is cut further still. You are also likely to have useful textbooks and journals at your disposal already.

If you feel that these materials are insufficient, then consider buying updated textbooks, or a prepackaged review program. The review program may be best when you lack the time or energy for organization of a study plan, or if you already intend to spend many hundreds of dollars on study materials.

Step 6: Focus on the relevant material with which you are <u>least</u> comfortable and familiar. For example, if you do emergent/urgent care 40 hours per week, you probably do not need to study it. In that case, management of chronic conditions should be your primary focus. More generally, if you are a relative expert in an area, you have less to gain by studying that area. <u>Keep Step 1 in mind during this period!</u>

Physicians often ask how well new research findings should be studied. First, the material upon which items must be based requires a relatively high level of scientific certainty, so focus on established medicine. There will typically be multiple articles and/or studies supporting a particular piece of medical information upon which a test item relies, simply because a single study will almost never be definitive. Also consider that there is roughly a 9 month development cycle for the examinations, so brand new information, no matter how reliable, is unlikely to appear as an item.

Step 7: Divide up the study material into your schedule, as specifically as is reasonable. If you plan to study the last 5 years of a monthly publication (120

journals), and you have 3 months to study, then that is roughly 10 journals per week. Consequently, summarizing the key findings in 2 journals per day is the pace that would be required.

Step 8: Proceed with studying, taking weekly inventory of progress. If you find at the end of the first week that your schedule is not as accommodating as you'd anticipated, consider what changes need to be made to your schedule or the ambitiousness of your study plan. Also, if studying is going as planned, consider using In-Training exam items before beginning and after a month to see if your performance seems to be improving.

Test-Taking Strategies

Theoretically, an exam result is a measurement of the knowledge of the test taker on the content being assessed. As with any form of measurement, results may not be accurate under certain circumstances. Some examination circumstances are under the control of the examinee, and some under the influence of the exam's developers and administrators. Here are some common causes of mismeasurement:

- The test taker has a physical problem that interferes with the expression of their knowledge on the exam. For example, an illness or uncorrected poor eyesight may cause examination difficulty to the extent of impaired performance.
- The examination environment is not conducive to exam taking. For example, there may be ongoing, loud construction noise in an adjacent room that impairs the concentration of examinees.
- The examinee does not (or cannot) focus on the task at hand and consequently fails to either read, understand, or follow directions. For example, excessive tiredness or distractibility may interfere with recall of information, with recording of intended responses, or with misunderstanding the question at hand.
- The examinee's response strategy is ineffective in translating his or her knowledge into the exam's response format.
- Examination materials may be flawed in some way. For example, if an image that is part of an item stem fails to be presented, then performance on the item will obviously be impaired.

With regard to the first circumstance, test takers have to decide whether or not they are physically prepared to take the examination. If for example, a test-taker is taking a prescription drug which may impair his or her memory or concentration, it is reasonable to expect that the resulting score will be lower than the optimal estimate of knowledge.

Some conditions, such as the second and last bullet point, are solely the responsibility of testing organizations. We must ensure that examination-testing sites uniformly provide appropriate noise and lighting levels, and a reasonably comfortable environment for the test takers. The American Board of Family Medicine (ABFM) spends a considerable amount of time and resources evaluating the adequacy of its testing sites.

The third circumstance is under the control of the test taker. A test-taker must carefully listen to the proctor and read the test directions. Optimally, all examinees will have taken time to familiarize themselves with the computer-based format and functions on the ABFM website, so that learning time during the actual exam will be

negligible. Also, a review of materials available before the exam (such as this) will aid the process as well.

The fourth circumstance, the test taker's strategy for completing the examination, will be the primary focus of this section.

ABFM certification and recertification examinations use multiple choice items (MCQ) that have one best answer. These items have a "stem" that presents the background information necessary for answering the question, which usually comes at the end of the stem. The suggested rules for responding to these items are listed below. Although each suggestion may seem merely like common sense, developing a conscientious habit of doing each of these with each item usually requires sustained effort and practice. You will have roughly 1 minute per question (slightly longer in the afternoon).

1) Read the stem carefully and make note of information that seems especially relevant.

2) Read EVERY response option, carefully. If you are sure that an option is not correct, cross out the option's letter. There is a computer function to allow this. This is particularly important if you plan to return to the reconsider the item later, for example, if you finish early and want to review. If you need to return to the item, write down the item number first, along with a brief note of your thoughts on the material available from the proctor.

3) If the item has physical and laboratory findings organized as a table or image, consider the data, taking note regarding findings that are particularly important.

4) Only after reading all options should you select the option that you think is correct. Marking an answer correct immediately upon reading it tends to cause cognitive foreclosure. That is, it is less likely that you will seriously consider possible alternative answers that appear later in the list of options.

5) If, after reading all of the options, you are totally unsure of the correct answer, make a guess from the options that you have not eliminated. The ABFM does not use a correction-for-guessing formula in scoring its examinations. Blank items will always be incorrect, whereas guessed items give you a reasonable chance to get the item correct. Furthermore, guessing by a knowledgeable person is never truly random, so your odds are better than chance.

6) Flag any and all items that you leave blank as you progress through the test. The computer-based flag feature enables you to quickly review unanswered questions later in the testing process.

7) Upon reviewing your responses, consider that the first thoughtful answer an examinee makes is usually the best answer. So, changing answers does not usually lead to increased scores. Merely second-guessing yourself is not likely to help your performance. However, if you realize that you actually misread or misunderstood a question, making a change may be reasonable.

8) Prior to considering the response options, attempt to determine whether general knowledge or patient-specific knowledge is being assessed.

9) Do not try to out-guess the item writers. Rely simply on your knowledge to respond to the selections. Items are not written to be "tricky". Writers do not rely on subtle wording to identify the intended response, although the specific information in each item is important.

10) In some standardized examinations, a recommended test-taking strategy is to read the response options first and then find the correct answer in the preceding material. This strategy may not be effective in medical examinations because of the vast amount of knowledge that must be brought to bear in order to identify the best response. Consequently, such a test-taking strategy is not recommended.

13) For some examinees it will be essential that exam time be carefully managed. Initially, you will have roughly one minute per item. As you proceed through the examination, periodically assess whether your pace is reasonable. Don't get caught short on time, because if you are forced to guess on a series of items to complete the exam, your score will invariably suffer. On the other hand, you do not get a bonus for finishing the examination ahead of time, so don't commit the error of rushing to finish the test. Make the maximum use of all of the time available to you.

14) ALWAYS ensure that you have answered all items prior to exiting the examination.

List of Potential Study Materials

The following list is NOT comprehensive! It includes all those study materials that successful participants in the pilot project mentioned that they used. There are certainly others out there that may be as good or better, but we do not yet have evidence that they have been effective for multiple candidates. Please let us know if you significantly improved your score and you used a source not listed. This list is in alphabetical order by first author (and category), rather than by order of efficacy. Furthermore, and to reiterate, the list does NOT constitute a "Board Approved" or "Board Recommended" list, or any such thing. It's simply a list of materials & resources that I have been told about by other successful candidates. There is no "Board Approved" or "Board Recommended" list.

JOURNALS	
American Family Physician	http://www.aafp.org/afp.xml
Journal of Family Practice	http://www.jfponline.com/
STUDY PROGRAMS/ONLINE MATERIALS	
Core Content Review	http://www.corecontent.com/
American Academy of Family Practice Home Study Review	http://www.aafp.org/x13980.xml
TEXTS	
Saunders Review of Family Practice	Bope & Hagen
Family Practice Board Review	Bratton, R. L.
Family Medicine, 2004 Edition	Chan, Winkle, & Winkle
Washington Manual of Medical Therapeutics, 31st Edition	Green, Harris, Lin, & Moylan
Harrison's Principles of Internal Medicine 16th Edition	Kasper, D.L., et al
Family Medicine Certification Review Blueprints in Family Medicine	Lipsky, M.
Procedures for Primary Care Physicians	Pfenninger, J.L.
Current Diagnosis & Treatment in Family Medicine	South-Paul, Matheny, & Lewis
Swanson's Family Practice Review	Tallia, et al
Family Practice Examination and Board Review	Wilbur & Graber
Specialty Board Review: Family Practice	Yuh-Ting Yen, E.

Effectively Employing your Score Report as an Individual Guide to Studying (Useful for Those Retaking an Exam, or for Anyone Interpreting a Score Report)

If you recently took the ABFM (re)certification exam, then your score report may have more than 200 values arrayed across five columns and roughly forty rows, with a few other numbers at the top. We hereby acknowledge that it is not going to make instant intuitive sense! However, with this as a guide, we hope you will be able to extract the useful information to promote your performance.

Consider the numeric columns to be numbered 1-5 left to right. Columns 2, 3, and 4 present your results, and the last two columns present the results of all other candidates who took the exam (typically several thousand). Comparing your percent correct with the average in each content area is a useful way to gauge how well you did in that area. If you did better than the overall group in a category, you should consider that to be a good performance in that particular category.

For the purpose of organizing studies you will need to consider two columns simultaneously. Compare your "items correct" column to the "Group Average Items Correct" column, on any category you care to look at. Each category is described row by row on the far left of the report. (Equivalently, you can compare your Percent Correct to the Group Average Percent Correct, to see how you did compared to the average physician in a given area.)

Count how many "below average" and "above average" scores you obtained. Are you clearly an expert in some areas (far above average)? In which areas are you relatively weak?

Finding the "Big Payoff"

Look at the number of items offered in each of the areas in which you scored in significantly below average. Then cross out the content areas in which there are relatively few items (column 1). What constitutes "few" is really up to you. A reasonably cautious value to use appears to be less than 10 items. These areas are less heavily represented on the exam, so emphasizing them in your study is not the best way to improve your score (although it obviously will not hurt).

Focus on the areas in which there are the most items, **AND** where your score was well below average. For example, if you obtained 50% correct in Cardiovascular or Internal Medicine, and the national average is 70%, then it is definitely worth studying, because it has so heavy a representation on the

test. **If you are weaker in a category, your learning curve will generally be steeper if you study it, as opposed to areas of expertise**. To the extent that one of your weaker categories has many items, you stand to pick up many points quickly with each additional hour of studying. Conversely, in an area where you are already expert you do not stand to gain anything by studying it further, although it may be more enjoyable!

Statistically speaking, most people who fail fall relatively close to the threshold for passing. Focused, heavy studying of areas of relatively poor performance that are highly represented on the exam will get the majority of "near-missers" over the passing threshold. However, please acknowledge to yourself that this is not the best long-term strategy, as it constitutes repair rather than prevention.

Exam Development and Scoring

ABFM Exams and Item Development

It is sometimes useful for potential examinees to hear the details about how an exam is constructed, because so much misinformation about exams exists. For example, having a framework for understanding the nature of the exam items may dispel myths about good test taking strategy. This document describes the development and construction of the ABFM primary certification exam so that you may be a better informed test taker.

The initial phase of examination development is the training of test item writers, and identification of the blueprint for the exam content. An item writing workshop is held annually to familiarize a group of family physicians with the principles of writing questions for examinations. For two days writers learn to structure a test question, write an item critique, and write effective distracters (incorrect answer options). Writers are asked to submit 20 questions per year, with item content assignments made on a quarterly basis. The item writers are asked to make at least a three-year commitment to this task. At the present time, we have approximately 40 family physicians writing test questions.

Each question submitted by the item writer is accompanied by documentation from a high quality and current journal, or an accepted and up-to-date textbook. This provides thorough justification for correct and incorrect answers for each item. As items come in to ABFM, they are reviewed and edited by editorial staff, and entered into the item bank. During entry, each item is classified based on its specific content characteristics, such as what organ system it is related to, what medical specialty area it tends to fall into, what patient characteristics are involved, et cetera. This classification allows items to be pulled for potential use in an examination, according to the established examination blueprint. For example, the blueprint might indicate that 27% of items on an exam be related to cardiovascular problems. Item classification allows relevant items to be pulled to fill the blueprint criteria.

The examination blueprint can be seen in detail on the ABFM website: https://www.theabfm.org/cert/exams.aspx . This blueprint was created in collaboration with members from each organization representing the “family” of Family Medicine. It incorporates and largely reflects what Family Physicians do in practice, based on surveys of our diplomates as well as the National Ambulatory Medical Care Survey. Based on this blueprint, the examination items are selected. For a more elaborate description of the development of the blueprint, see "From Specialty-Based to Practice-Based: A New Blueprint for the American Board of Family Medicine Cognitive Exam" (JABFM,

November/December 2005, http://www.jabfm.org/). The entire exam assembly process takes approximately 9-10 months.

Once the exam is initially compiled, a committee reviews the questions available for the examinations. This committee is made up of family physicians from varied backgrounds: some are in private solo practice, some in group practice, and some are in an academic setting. An effort is made to have the committee reflect the diversity of Family Medicine. The exam review committee meets three times per year. Specialists from areas other than Family Medicine are also invited to lend their expertise to the review of exam items. Committee members verify the clinical relevance of each item, and its accuracy. Imprecise and irrelevant questions are eliminated in this process. After this committee has met, the test development staff carefully edits, amends, or replaces each question to make certain that any changes made by the committee are clear and backed up by appropriate documentation. By the end of this process the set of items is expected to be relevant to Family Medicine and supported by adequate documentation for the response options. The final draft is then reviewed by a committee of the Board of Directors. At this stage, we do not expect many changes; however, if the Board members see any question about which they may be in disagreement, they will eliminate that question.

Setting the Passing Threshold

A set of more than two dozen ABFM diplomates individually rates the difficulty of each item to set a minimum passing score, using a process called the Angoff technique. This group of volunteer physicians are randomly selected from all those recent diplomates that performed well on their last examination. Ultimately, the exam's passing threshold is a standard set by your peers in family medicine. Because of the sampling procedure, the makeup of this group is similar to the overall group of family physician diplomates. The rating process they perform involves estimating the percentage of marginally certifiably knowledgeable candidates who would correctly answer each particular question. This committee may also comment on and critique certain questions, particularly those in which relevance to Family Medicine may be debated. The minimum passing score established by this group, its practical impact on passing percentage, and the procedures for its establishment are later reviewed and approved by the ABFM examination committee.

Exam Day and Afterward

On examination day, all candidates (certification and recertification) will be presented with 280 multiple-choice questions. They will also take the two 45 question modules they selected during the application process. The modular sections are selected by each candidate from the following topical categories (for 2006): Geriatrics, Emergent/Urgent Care, Ambulatory Family Medicine, Child and Adolescent Care, Women's Health, Maternity Care, Hospital Medicine,

Sports Medicine. The purpose of module selection is so that your exam performance might better reflect the expertise you have gathered in practice (e.g., those candidates who see obstetric patients and children might select Obstetrics or Pediatrics for their modules).

Finally, after the examination, your response data are returned to the ABFM by the testing agency. Items that do not perform as intended are reviewed once again for accuracy and precision of wording. Empirical data from thousands of respondents will invariably show when there is a problem with an item. For example, if an alternate response is also correct, statistics will show that it is a popular answer, or that high-scoring examinees tended to choose that answer. Whenever this happens, prior to beginning the scoring of the exam, such items are reviewed once again. Problematic items will typically be counted as correct for all examinees. Typically this is no more than a small handful of items.

Multiple checks of data and computer records are undertaken to ensure that the incoming data is an accurate record of each examinee's intended responses. When all data has been combed through, when scoring is complete, and when the lengthy individual performance report is compiled, the results are evaluated extensively by a quality assurance team. Score reports get released online following the full completion of each of these processes, typically 6-8 weeks after the last examination is administered.