



**NBME<sup>®</sup>**  
SUBJECT  
EXAMINATIONS

**PROGRAM GUIDE**

Measure Student Knowledge  
and Access National Normative Data



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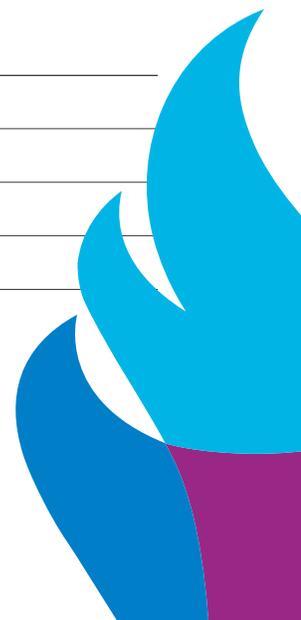
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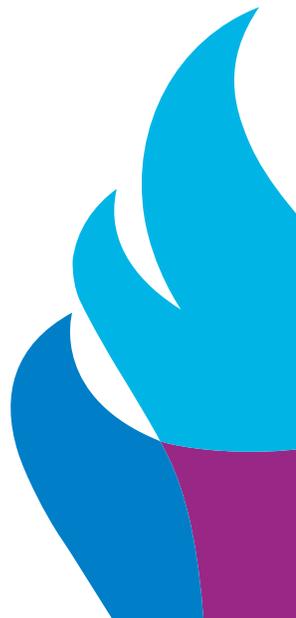
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# OVERVIEW AND REGULATIONS FOR USE OF SUBJECT EXAMS

This guide provides general information about the Subject Exam program offered by NBME.

## Mission and Background

- ▶ NBME offers standardized, objective, discipline-based exams for use in assessment throughout the medical school curriculum. The exams are designed to provide institutions with effective evaluation tools and useful examinee performance data that can be compared with a large representative group of examinees at the same stage of training.
- ▶ The Subject Exam program serves medical educators by providing high-quality assessment tools and feedback to track their students' progress toward learning during their medical education journey.

## Benefits

- ▶ Twenty-seven individual exams are available for administration across various disciplines from first to fourth-year undergraduate medical education.
- ▶ Subject Exam forms are pre-built, easy to administer and help you save the time and resources that go into creating your own assessment.

- ▶ All items are written and reviewed with the same rigor used to create USMLE® Step 1 and Step 2 items.
- ▶ The exams provide national norms and relevant descriptive information. These norms reflect the performance of examinees from medical schools accredited by the Liaison Committee on Medical Education (LCME).

## Policy on Use of Subject Exams

NBME provides Subject Exams in the basic and clinical sciences for the purpose of assessing the educational achievement of individuals in specific content areas. These exams may be provided to medical schools and other institutions with a legitimate interest in the education of physicians or other health professionals. All institutions using these exams must comply with test administration standards, including security protocols.

Subject Exams are designed primarily for use as final exams after courses, clerkships, or other units of instruction. Scores achieved on NBME Subject Exams cannot be used by examinees for credit toward the exam requirements for medical licensure in the United States.



## Legal Compliance

An institution is not authorized to use the NBME Subject Examinations if the institution is (a) located in a country that is subject to a US government embargo, or that has been designated by the US government as a “terrorist supporting” country; or (b) listed on any US government list of prohibited or restricted parties. In addition, institutions are not authorized to administer any NBME Subject Exam to any individual who is listed on any US government list of prohibited or restricted parties.

## Research/Publications

To ensure the integrity, security, fairness, and effectiveness of NBME assessments, NBME analyzes data derived from and submitted in conjunction with its examinations. The exam data may be used by NBME for conducting its research and for other purposes consistent with NBME’s Privacy Notice. NBME may also use exam data to conduct and publish research for the betterment of medical education and to advance the sciences of psychometrics, measurement, and statistics. NBME research submitted for publication is subject to independent Institutional Review Board (IRB) approval consistent with the requirements of peer reviewed journals. In

all instances, the data will be kept confidential, and no institution or examinee will be identifiable in any publication. Examinees can update their preferences in their MyNBME® User Profile.

## Security of Exams

To ensure the integrity of the NBME Subject Exam program and the validity of the scores reported, it is essential to always maintain the security and confidentiality of test materials. All items used in NBME Subject Exams are owned and copyrighted by NBME. In addition, any unauthorized reproduction or dissemination of test materials or any part of them through any means, including but not limited to copying, printing, photographing or downloading of electronic files, or reconstruction through memorization and/or dictation, is strictly prohibited. NBME reserves the right to pursue its rights and remedies to the fullest extent permitted by law without further notice, including taking legal action. NBME also reserves the right to discontinue Subject Exam services in the event of a breach or suspected breach in the security of test materials.



**27**  
**EXAMS**

available  
across various  
undergraduate  
medical education  
disciplines

# SUBJECT EXAM CONTENT

The subject exams cover content which measures learning and knowledge across different disciplines from first year to fourth year of undergraduate medical school.

Subject Exam content outlines are developed by NBME committees of content experts that are used to construct each test. Items are selected based on content and performance statistics. The final form of each exam is reviewed and approved by the appropriate committee chair prior to release. For more information, go to <https://www.nbme.org/about-nbme/our-collaborations/item-co-creation>.

All subject exams must be administered in a secure, proctored environment.

## Basic Science

The Basic Science exams are used to assess first- and second-year medical students' end-of-course knowledge in a discipline-based curriculum. They are also administered as an additional tool to help students with remediation in specific content areas after taking the Comprehensive Basic Science Exam (CBSE).

- ▶ Behavioral Science
- ▶ Biochemistry
- ▶ Gross Anatomy only
- ▶ Gross Anatomy + Embryology
- ▶ Histology
- ▶ Introduction to Clinical Diagnosis
- ▶ Microbiology only
- ▶ Microbiology + Immunology
- ▶ Neuroscience
- ▶ Pathology
- ▶ Pharmacology
- ▶ Physiology

## Clinical Science

The Clinical Science subject exams are used to assess third-year medical students' knowledge in specific disciplines at the end of traditional clerkships. NBME works with task forces made up of medical school faculty who review the content outline, write/review items and adjust the exams' blueprints based on updates to national curricula.

- ▶ Ambulatory Care
- ▶ Clinical Neurology
- ▶ Family Medicine
  - ▷ Core
  - ▷ Core + Chronic
  - ▷ Core + Chronic + Musculoskeletal
- ▶ Medicine
- ▶ Obstetrics and Gynecology
- ▶ Pediatrics
- ▶ Psychiatry
- ▶ Surgery



## Comprehensives

The Comprehensive subject exams measure progress and readiness for students about to take USMLE Steps 1 and 2; the exams and their feedback help identify students' weaknesses prior to taking Steps 1 and 2. The exams must be administered securely and are not intended to be used for practice purposes.

- ▶ Comprehensive Basic Science
- ▶ Comprehensive Clinical Science

## Advanced Clinical Science

The Advanced Clinical Science subject exams are used to assess content knowledge either in fourth year, sub-internship or residency programs.

- ▶ Emergency Medicine
- ▶ Internal Medicine

## Health Systems Science

NBME worked with the American Medical Association to develop and pilot the Health Systems Science Exam in collaboration with medical faculty experts in Health Systems Science. Faculty can use this high-quality, standardized assessment tool to support the implementation of Health Systems Science curricula and educational initiatives. Together with clinical and basic science instruction, Health Systems Science prepares medical students for effective clinical practice.

## Content Outlines

Content outlines and sample items for each subject exam are available on the Subject Examinations webpage under "For Educators" on [NBME.org](https://www.nbme.org).

## Exam Preview

Faculty at institutions that have been set up in the NBME systems to use the Subject Exams can also use the free Exam Preview service to preview representative content for a specific Subject Exam, to determine whether that exam is appropriate for a particular class/curriculum. Exam Previews are managed by the institution's Executive Chief Proctor and are open to faculty and other authorized staff.

# REPORTED SCORES

## Equated Scores

Equated Percent Correct (EPC) scores are reported on the familiar 0–100% scale and represent the percentage of content mastered. EPC scores are usually close to examinees' raw percent correct, but not identical. That is because EPC scores consider both how many questions were answered correctly and how difficult those questions were, giving a more accurate picture of examinee performance.

Schools can use EPC scores to accurately track performance over time, across learners, and to compare their school results to national performance from representative groups taking the same Subject Exams.

Multiple forms may be available for each Subject Exam. Each form for an exam is carefully built to cover the same content and be as similar in difficulty as possible. Even so, small differences in difficulty can occur. To ensure fairness, the EPC is statistically adjusted to remove the impact of any slight variations in form difficulty. This process allows faculty to trust that score differences reflect what examinees know—not which form they happened to take.

The benefits of EPC scores include:

- ▶ Providing a consistent way to measure performance on multiple exam forms administered at the same or different times.
- ▶ Ensuring scores have the same meaning on different forms of the same exam.
- ▶ Insight into an examinee's mastery of the content domain, calculated as a percentage of items in the total content domain that would be answered correctly based on an examinee's proficiency level.

## Percent Correct Scores

- ▶ Percent correct scores are provided for new exams that have not yet been administered to a sufficient number of examinees for equating.
- ▶ Score feedback is limited until sufficient data have been obtained.
- ▶ Once sufficient data have been obtained for equating, equated score feedback will be generated and posted to the portal.

## Question Counts on Reported Scoring

The number of questions displayed on the Question Details tab of INSIGHTS® and the Examinee Question-Level Feedback Report for Subject Exams may differ from the number of questions examinees encountered while testing. This is due to two factors:

**Field testing:** Each Subject Exam may include field-test questions. These questions are included to ensure their quality and fairness for future exams, and they are not scored.

**Quality assurance:** As part of NBME's commitment to maintaining high-quality exams, occasionally a small number of questions is removed from scoring due to findings from data and content monitoring procedures. This ensures that examinees' scores are not affected by questions that no longer meet our quality standards, such as when changes in clinical guidelines alter the appropriateness of a question.

The scoring approach for the Subject Exams is based on psychometric modeling that takes both the proportion of questions answered correctly and their difficulty into account, so examinees have a fair chance to demonstrate their knowledge even if there is slight variation in the number of scored questions across exam forms.

# SCORE REPORTS

All scoring feedback, norms, and grading guidelines may be accessed through the MyNBME Services Portal for institutions and MyNBME Examinee Portal for examinees.

## Web-Based Administrations at Your Institution:

**Available for institutions:** Results are often posted to medical schools in the MyNBME Services Portal the calendar day after a testing window ends or the following day. However, for a typical assessment, posting may take up to three business days after the conclusion of an administration for exams administered at a medical school. Schools should begin checking for available test results in the MyNBME Services Portal 24 hours following the end of a testing window.

**Available for examinees:** In addition to being posted to the MyNBME Services Portal for faculty access and review, examinee scores and feedback are made available to examinees via INSIGHTS, an interactive dashboard that allows examinees to download their score reports directly and explore their performance feedback with greater flexibility. Examinees can access INSIGHTS through the MyNBME Examinee Portal. An email notification with instructions is sent to examinees when results become available. For additional details, including INSIGHTS posting timeframes, access the user guide at <https://www.nbme.org/educators/resources/insights>.

## Web-Based Prometric Administrations:

**Available for institutions:** Results are often posted to medical schools in the MyNBME Services Portal the calendar day after a testing window ends or the following day. However, for a typical assessment, posting may take up to three business days after the conclusion of a testing window for exams administered at a Prometric test center. Schools should begin checking for available test results in the MyNBME Services Portal 24 hours following the end of a testing window.

**Available for examinees:** In addition to being posted to the MyNBME Services Portal for faculty access and review, examinee scores and feedback are made available to examinees via INSIGHTS, an interactive dashboard that allows examinees to download their score reports directly and explore their performance feedback with greater flexibility. Examinees can access INSIGHTS through the MyNBME Examinee Portal. An email notification with instructions is sent to examinees when results become available. For additional details, including INSIGHTS posting timeframes, access the user guide at <https://www.nbme.org/educators/resources/insights>.

A brief description of the various types of score reports and associated downloadable text files is provided below. Please visit [Subject Examinations | NBME](#), then select Score Reports for more details and score report samples.

### Score Interpretation Guide

- ▶ Provides detailed information about the computation of scores, the contents of each type of score report and the contents of downloadable data files.

- ▶ It is included with the Roster Report and can also be accessed separately on the portal under the Score Reports tab.

### Roster Report

- ▶ Provides the total score for each examinee and descriptive statistics for the administration. A downloadable roster text file includes the total score and content area scores for each examinee.

### **Content Area Report**

- ▶ Available for any Subject Exam administration with at least 5 examinees and for which equated scores are available.
- ▶ Provides information on the performance of your examinees and a national group of examinees on the major content areas on the exam.

### **Item Analysis Report**

- ▶ Available for any Subject Exam with at least 5 examinees testing during a single form administration and for which equated scores are available.
- ▶ Provides information on the performance of your group of examinees and a national group of examinees on each item.
- ▶ Helpful in determining the extent to which your examinees have learned the content of individual items.
- ▶ Provided for institutional use in assessing the performance of examinees. The written authorization of NBME must be obtained prior to any additional use of the data (e.g., in research papers).

### **Examinee Performance Report**

- ▶ Provides information about overall performance and performance on major content areas on the exam for each examinee.
- ▶ Intended for distribution to examinees as an aid in self-assessment.

### **Examinee Question-Level Feedback Report**

- ▶ Provides information on the performance of each examinee and a national group of examinees on each item.
- ▶ Intended for distribution to examinees as an aid in self-assessment.

### **Norm Table**

- ▶ Provides information enabling you to compare your examinees' performance with a nationally representative group of examinees from LCME-accredited medical schools at the same stage of training.

- ▶ The most recent norms for each exam are included with the score reports and can also be accessed separately on the MyNBME Services Portal along with earlier norms (when available) under the Score Reports tab.

### **Grading Guidelines**

- ▶ Available for all Clinical Science subject exams and the Emergency Medicine Advanced Clinical Science subject exam to assist clerkship and course directors in determining passing and honor grades for their examinees.
- ▶ NBME facilitates a review of the guidelines with faculty members to update and ensure the continued appropriateness of the guidelines every two to three years.

### **Year-End Report**

- ▶ Available for all Clinical Science and Advanced Clinical Science subject exams.
- ▶ Provides summary information regarding the performance of examinees from your institution in relation to several national comparison groups based on the most common clerkship rotation lengths for each discipline.

## **Test Delivery Options**

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### **Web-Based Examinations at Your Institution**

If you wish to administer the NBME Subject Examinations at your institution and do not yet have access to do so, please contact NBME at [medicalschoolservices@nbme.org](mailto:medicalschoolservices@nbme.org). Once set up in the NBME systems, all Subject Examinations will be available for administration.

Web-based exams must be administered in a secure, proctored setting. NBME provides a web-based utility that checks both hardware and software configurations and downloads a plug-in that secures the browser. The computer is locked down, preventing the examinee from accessing applications such as e-mail or notepad. It also includes a function designed to detect any recording applications and programs that may be running on workstations or examinees' personal laptops prior to the start of the exam.

## Web-Based Examinations at Prometric Test Centers

The Clinical Science (except Ambulatory Care), the Emergency Medicine Advanced Clinical Science Exam, and Comprehensive Subject Examinations are available for administration at Prometric’s worldwide network of secure test centers. Prometric testing may be preferred for students serving on clinical rotations in a distributed hospital network or for those located at a site without web-based test delivery capability. It may also be useful for makeup tests. This option requires advance planning to allow students sufficient time to schedule testing appointments.

## Clinical and Advanced Clinical Science Examinations Administered Remotely

All Clinical Science and Advanced Clinical Science Subject Exams are available for remote administration. This option is also preferred for students serving on clinical rotations in a distributed hospital network or at an institution where campuses are geographically scattered.

## NBME Subject Examinations

<b>Basic Science</b>	<ul style="list-style-type: none"> <li>▶ Behavioral Sciences</li> <li>▶ Biochemistry</li> <li>▶ Gross Anatomy only</li> <li>▶ Gross Anatomy + Embryology</li> <li>▶ Histology</li> <li>▶ Introduction to Clinical Diagnosis</li> </ul>	<ul style="list-style-type: none"> <li>▶ Microbiology only</li> <li>▶ Microbiology + Immunology</li> <li>▶ Neuroscience</li> <li>▶ Pathology</li> <li>▶ Pharmacology</li> <li>▶ Physiology</li> </ul>
<b>Clinical Science</b>	<ul style="list-style-type: none"> <li>▶ Ambulatory Care</li> <li>▶ Clinical Neurology*</li> <li>▶ Family Medicine Modular* Core</li> <li>▶ Core + Chronic Care</li> <li>▶ Core + Chronic Care + Musculoskeletal</li> </ul>	<ul style="list-style-type: none"> <li>▶ Medicine*</li> <li>▶ Obstetrics and Gynecology*</li> <li>▶ Pediatrics*</li> <li>▶ Psychiatry*</li> <li>▶ Surgery*</li> </ul>
<b>Health Systems Science Exam</b>	<ul style="list-style-type: none"> <li>▶ Health Systems Science</li> </ul>	
<b>Advanced Clinical Exams</b>	<ul style="list-style-type: none"> <li>▶ Emergency Medicine*</li> <li>▶ Internal Medicine</li> </ul>	
<b>Comprehensive Exams</b>	<ul style="list-style-type: none"> <li>▶ Comprehensive Basic Science*</li> <li>▶ Comprehensive Clinical Science*</li> </ul>	

\* Available for Administration at Prometric Test Centers

## Scheduling Web-based Exams at Prometric Test Centers

After the test administration roster has been created for a web-based exam at a Prometric test center, NBME generates a scheduling permit for each examinee in approximately 2-3 business days. There are exceptions if the examinee requires test accommodations (See page 13). Each examinee will receive an e-mail from NBME with a URL to access and print/download their scheduling permit. Information printed on the scheduling permit

is required to schedule a testing appointment through Prometric’s website. The permit also has information about admission to the test center, cancelling/rescheduling appointments, and other policies and procedures.

### Web-Based Administrations

<b>Web-Based Administrations Through Your Institution</b>	<ul style="list-style-type: none"><li>▶ Orders may be placed up to and including the 2nd calendar day prior to the test date.</li><li>▶ Orders lock 2 calendar days before the test date.</li></ul>
<b>Web-Based Prometric Administrations</b>	<ul style="list-style-type: none"><li>▶ A testing window of 7-14 calendar days is required.</li><li>▶ Orders must be placed no later than 28 days prior to the start of the testing window.</li><li>▶ Orders lock 21 calendar days prior to the start of the testing window.</li></ul>

### MyNBME Services Portal

Services and reports related to Subject Exams are available through the MyNBME Services Portal. This is a secure website and a primary source for authorized users to obtain information about their students for a variety of activities related to USMLE, NBME Subject Exams, and other services.

issues that may arise. NBME staff are available 24 hours a day, 7 days a week by calling 215-590-9298 (exclusive of NBME holidays).

### Web Administrations at Prometric Test Centers

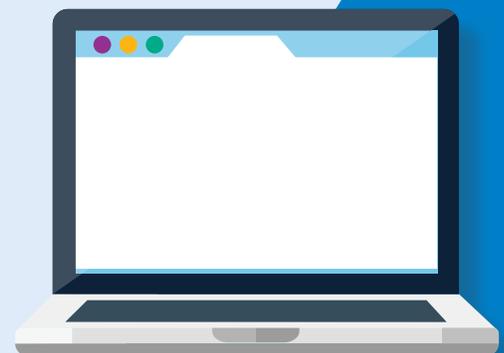
Prometric test center staff will administer NBME examinations in a secure setting and respond to any technical or procedural issues. Information about Prometric test centers is available at [www.Prometric.com](http://www.Prometric.com)

### Test Administration Support

#### Web Examinations at Your Institution

NBME staff will be available for support on scheduled test dates to respond to technical or procedural

OBTAIN INFORMATION ABOUT STUDENT ACTIVITIES RELATED TO USMLE, NBME SUBJECT EXAMS, AND OTHER SERVICES BY USING THE **MyNBME SERVICES PORTAL.**



# TEST ACCOMMODATIONS

## Examinees with Disabilities

Individuals with disabilities may be entitled to accommodations under applicable federal and state law. If an examinee applies for test accommodations in the administration of a Subject Exam on the basis of a disability, the school will determine whether any accommodations are warranted, decide what specific accommodations may be reasonable for a particular examinee, and bear all costs associated with any such accommodation. Because Subject Exams have standardized content and scoring, it is not possible to modify the content or scoring of Subject Exams based on student accommodations.

## Oral Rendering of a Web Examination

The institution must follow the NBME Protocol for Oral Rendering of Subject Exams. The person selected to read the Subject Exam to the examinee on the test day must sign the nondisclosure form provided by NBME prior to accessing any test materials. To obtain the nondisclosure form and protocol, contact [subjectexams@nbme.org](mailto:subjectexams@nbme.org).

## Extra Testing Time and Text Enlargement for Local Administration of Web Examinations

NBME has several pacing options (1.25x, 1.5x or 2x) for examinees needing extra testing time. The pacing is set in the examinee's record on the test administration roster, which alerts the system to create an extra-time form. Multi-day administrations

are only allowed for examinees requiring alternative pacing options for the Comprehensive Basic Science Exam or Comprehensive Clinical Science Exam in a local administration. In such instances, exam sessions are limited to no more than two separate days, with the second exam session occurring within 3 calendar days following the first exam session.

Examinees with visual impairments can use the browser's text size feature to enlarge the font. Alternatively, examinees may also use Zoom Text Software. If an examinee would like to use their own screen magnification software, contact NBME Support to check for software compliance.

## Accommodations at Prometric Test Centers

It is possible to arrange for examinees to take an exam with test accommodations (e.g., extra testing time) at a Prometric test center. Orders should be placed as far in advance as possible because generating these scheduling permits could take up to two weeks. Students who need accommodations will be provided with instructions on their scheduling permit to call Prometric (based on the testing region) to schedule their testing appointments.



# ADDITIONAL INFORMATION

Requests for additional information outside the scope identified below will be reviewed by NBME for adherence to exam security, data integrity, legal compliance, and other requirements and may incur additional fees.

## Agreement Analysis for Irregular Testing Behavior

An agreement analysis may be requested and conducted for examinees suspected of irregular testing behavior, such as copying or collaboration. Agreement analysis is a statistical tool that can provide helpful, supportive information for the investigation of observed behaviors that may compromise the validity of examinees' scores. The agreement analysis compares the degree of agreement that is observed between the incorrect responses of two examinees (pair) with the degree of agreement that would be expected to occur between two randomly chosen examinees taking the same exam independently. Agreement analysis uses only those items that both examinees in the pair answered incorrectly.

Any actions taken by an institution on the basis of such information are completely the responsibility of the institution.

## Score Recheck Service

NBME is confident that each reported Subject Exam score is an accurate reflection of the responses that

an examinee recorded in the testing interface for web-based exams.

This is based on reliable scoring and reporting techniques backed by a variety of quality control and verification procedures.

However, if a score is believed to be in error, a review of the response record generated for a web exam can be requested.

Requests for score rechecks must be initiated by the institution, either by the ECP or appropriate staff (e.g., course or clerkship director) in the department administering the test. Payment is not accepted from examinees. A Score Recheck Request form is available to download from the [Subject Examinations | NBME](#), Resources.

Once the score recheck is complete, an invoice showing a charge of \$25.00 will be available under the order number associated with the exam.

Results are provided approximately two weeks after receipt of the request. It should be noted that the sole purpose of the score recheck service is to verify that the score originally reported is correct. Score recheck requests may be made up to six months after the test date. Score recheck requests received after that time cannot be accommodated.

ACCURATE AND RELIABLE SCORING AND REPORTING TECHNIQUES ARE BACKED BY A VARIETY OF QUALITY CONTROL AND VERIFICATION PROCEDURES.



# ADDITIONAL RESOURCES

The resources listed below are available online at [www.nbme.org](http://www.nbme.org):

- ▶ Administration of NBME Examinations at Prometric test centers
- ▶ Arranging for and Administering an NBME Web-Based Exam
- ▶ Fees, payment options, and policies
- ▶ Sample score reports
- ▶ Subject Exam Timing Chart
- ▶ Subject Exam Content Outlines and Sample Items

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## CONTACT US

Please feel free to contact us if you have any questions. NBME staff can provide the information you need or help solve a problem.

### NBME Contact List

<b>NBME Billing</b> Accounts and Invoice Questions Only	▶ <a href="mailto:NBMEAccounts@nbme.org">NBMEAccounts@nbme.org</a>
<b>Operational Support for Web-Based Subject Exams</b> (questions about ordering exams, faculty review, test accommodations, Prometric administrations, proctoring, exam security, scoring issues, test administration, etc.)	▶ <a href="mailto:SubjectExams@nbme.org">SubjectExams@nbme.org</a> ▶ 215-590-9258
<b>All Other Inquiries</b>	▶ <a href="mailto:support@nbme.org">support@nbme.org</a>