



**Penn Medicine**

Continuing Medical and  
Interprofessional Education

The 19th Annual

# **PENN NEUROLOGY BOARD REVIEW 2022**

Available Online from May 9 – December 31, 2022

A CME-ACCREDITED COURSE

**LIVE VIRTUAL**

**LIVE PRESENTATIONS**

Monday, June 6, 2022

**MOCK EXAM WITH DISCUSSION**

Tuesday-Wednesday  
June 7-8, 2022

Course Director  
Raymond S. Price, MD

Co-Course Director  
Laura Stein, MD

In Conjunction with:  
Department of Neurology  
Perelman School of Medicine  
at the University of Pennsylvania

You may print the brochure and/or  
register for the course online.  
<https://upenn.cloud-cme.com/NBR2022>



## THE 19TH PENN NEUROLOGY BOARD REVIEW 2022

### Program Overview

This course is specifically designed for neurologists taking or retaking the Initial Certification Neurology Examination, the Initial Certification Neurology with Special Qualifications in Child Neurology Examination or the Recertification Examination.

### Target Audience

This course is designed for neurology residents, fellows, and practicing neurologists.

### Educational Goal

Upon completion of this activity, participants will be able to prepare for either the American Board of Neurology and Psychiatry (ABPN) Initial Certification Examination in Neurology, the Initial Certification Neurology with Special Qualifications in Child Neurology Examination, or the Recertification Examination.

### Accreditation

Perelman School of Medicine at the University of Pennsylvania is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

### Designation of Credit

Penn Medicine designates this live activity for a maximum of 21.75 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Amount of Credit Available By Day:

Monday .....8.25 *AMA PRA Category 1 Credits™*

Tuesday .....6.75 *AMA PRA Category 1 Credits™*

Wednesday ....6.75 *AMA PRA Category 1 Credits™*

**Certificates and Transcripts:** After the conference has concluded, all participants will receive a follow-up email with instructions and a link. Once participants submit the request for credit, the earned credits will be available for viewing on a transcript and certificates will be available for printing at <https://upenn.cloud-cme.com>. Please note that the individual certificate will not be mailed.

### Hosting Institution

The *19th Penn Neurology Board Review 2022* is hosted by the Department of Neurology, University of Pennsylvania Health System. The department has a long tradition of excellence in the neurosciences and is internationally known for its strengths in many of the neurologic subspecialties. Other lecturers include those from the Departments of Psychiatry and Radiology.

### Benefits of Attendance

Our course will provide an excellent review of board exam and recertification topics and help the learner identify areas that require further study. The learner can then review and prepare further in these areas prior to taking the examination.

## Comments from past participants:

*"I have absolutely enjoyed my experience and learning thus far. I have been to other neurology reviews and board reviews and this, in many ways, tops all of them."*

*"The best review course for the neurology board exam."*

*"Please allow me to thank you and your staff for helping me pass the Neuro Boards. I personally feel that the course made a difference."*

## THE 19TH PENN NEUROLOGY BOARD REVIEW 2022

**Prerecorded Didactic Lectures Available May 9 – December 31, 2022**

**Live Didactic Presentations – Monday, June 6, 2022**

We understand that preparing for the boards means spending many hours studying and reviewing. In an effort to provide our attendees with the comprehensive review needed to study for the boards within their own busy schedule, about 50 hours of pre-recorded video lectures are included in the course registration fee and are available online from May 9 until December 31, 2022 to all of our pre-registered and paid attendees. In addition to 45 hours of didactic lectures, there are an additional 5 hours of pre-recorded case-based discussions with multiple choice questions with 5 answer choices just like the ABPN examination. Attendees will be able to use these case-based sessions to assess their knowledge and then listen to a discussion about the reasoning behind the correct and incorrect answers. This will allow our attendees to review and study the videos at their own pace. The pre-recorded lectures are not approved for CME credit. The full list of pre-recorded lectures is listed on the agenda. The live didactic lectures will also be recorded and made available to all attendees by June 13, 2022.

## LIVE VIRTUAL MOCK EXAM | June 7-8, 2022

This course is designed based on adult learning principles to emphasize active learning and self assessment. Over 6/7 and 6/8, our course will simulate the ABPN examination with attendees taking a 400 question mock examination over the course of 420 minutes. The percentage of questions on a particular topic is identical to the ABPN initial certification examination content blueprint. Attendees will complete two 100-question blocks on 6/7 and another two 100-question blocks on 6/8. After each 100 question block, there will be a 75 minute discussion of those 100 questions based on which questions attendees would like reviewed. This allows for immediate reinforcement of key concepts and test-taking strategies that will optimally prepare you for the ABPN examination. You must register for the Online Course in order to register for and attend the Live Mock Exam.

There is an option to purchase 800 additional questions for self-study and to receive questions via email, or to your mobile device, three times per week beginning when you register until 12/31/22 to more continuously prepare you for the American Board of Psychiatry and Neurology Examination. Utilization of this technology has been shown to increase scores on National Board of Medicine examinations. For an additional fee, all pre-registered, paid attendees can choose this option below:

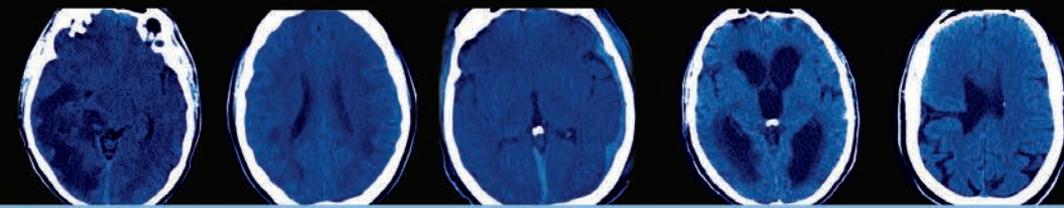
- **Additional Self-Study Option (800 additional questions):**  
800 additional questions (including answers and explanations for self-study) and receive four (4) Board-style questions that will be sent to your email or mobile device every other day from the date you register until 12/31/22.

## Live Stream Mock Exam Materials

All materials will be mailed to the address in your Penn Cloud CME profile. Be sure your correct mailing address is updated no later than May 23, 2022.

## Limitations

It is impossible for us to cover all of the material necessary to answer every question on the board or recertification exams. Similarly, we cannot guarantee that attending this course will result in passing the board or the recertification exams.



### Registration Fees

The registration fee for the *19th Penn Neurology Board Review 2022* on June 6, 2022 are \$1,295 for physicians and \$995 for residents and fellows. These presentations are live. Registration also includes access to about 50 hours of pre-recorded lectures and presentation slides online through December 31, 2022.

The registration fee for those needing access to the pre-recorded presentations and Board-style questions through February 10, 2023 is an additional \$200.

The registration fee for the *Live Virtual Mock Exam* held on June 7-8, 2022 is \$500 and includes access to the mock examination, Q&A with the course director and moderators, and a hard-copy version of the mock exam. You must register for the *2021 Board Review* in order to register for the *Mock Exam*.

The Additional Study Option is \$825 and includes attendance to the *Mock Exam*, four daily board-style review questions (100 total) sent by text or email and 700 questions with answers and references for self-study.

Once you register for the *19th Annual Neurology Board Review 2022* you will have immediate access to the lectures and presentations. All pre-registered *Mock Exam* attendees will receive a link and instructions to sign-in and join the virtual mock exam by Thursday, June 2, 2022. Be sure to check your spam box for emails regarding this conference.

**How to Register Online** visit: <https://upenn.cloud-cme.com/nbr2022>

If you do not already have a UPenn Cloud CME profile, you will need to create one by visiting: <https://upenn.cloud-cme.com> and clicking ‘Sign-in’ and sign-in using your email address and then selecting the “Don’t have an account?” option.

Please be sure you do not already have an existing UPenn Cloud CME account before creating a new profile. All Penn Medicine employees, faculty and staff must sign-in using your UPenn ID.

If you are registering with a credit card, please register online at <https://upenn.cloud-cme.com/NBR22>. We cannot accept faxed or mailed registration forms with credit card information. To pay by check, complete the registration form and mail it in with your check. Please see the registration form for mailing information. Please note: mailed registrations can take up to 5-10 business days before they are received. All registrations will be confirmed by email as long as your registration is received no later than June 4, 2022.

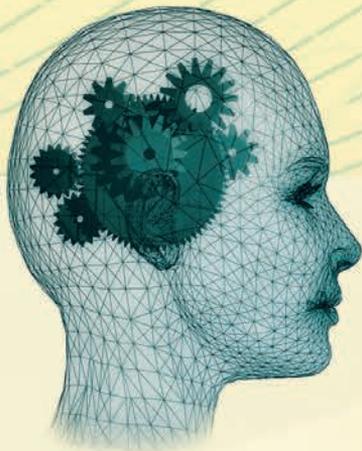
### Discount Policy

Individuals taking this 2022 course may take a future *Penn Neurology Board Review Course* and receive a discount of 25% off of the additional offerings (option 1, 2, 3) if they do not pass the 2022 board exam or 75% off of the additional offerings (option 1, 2, 3) if they do not pass the 2022 recertification exam. Proof of non-passing score and course registration will be required to be eligible for the discount.

### Cancellation and Refund Policy

Upon registration & payment, each attendee has access to the lectures and presentations. Therefore once you are enrolled, no refunds can be issued. If you register and then cannot attend, please contact us at [penncme@pennmedicine.upenn.edu](mailto:penncme@pennmedicine.upenn.edu) or 215-898-8005 so that we can ensure you receive your materials.

The University reserves the right to cancel or postpone any course due to unforeseen circumstances.



# LIVE VIRTUAL

## AGENDA

### Monday, June 6, 2022

7:45 AM – 8:00 AM

#### Sign-In

8:05 AM – 8:50 AM

#### Neurophysiology (EMG, VEP, BAERS) Through Clinical Cases

Shawn Bird, MD

- Clinical
- EMG/NCV videos

8:50 AM – 9:35 AM

#### Neurovascular Through Clinical Cases

Steven R. Messé, MD

- Classic stroke syndromes
- Acute stroke therapy including an overview of ischemic penumbra and tPA
- Stroke prevention including an overview of antithrombotic medication and anticoagulation

9:35 AM – 10:15 AM

#### Neuro-Immunology Through Clinical Cases

Dina Jacobs, MD

- Molecular pathogenesis of multiple sclerosis
- Immunotherapy in multiple sclerosis

10:15 AM – 10:30 AM Break

10:30 AM – 11:20 AM

#### Pediatric Neurology Through Clinical Cases I

Marissa Digiovine, MD

- Complex molecules (lysosomal storage, peroxisomal, e.g.)
- Intoxication disorders (aminoacidopathies, organic acidemias, urea-cycle defects, and sugar intolerances, e.g.)
- Energy metabolism (lactic acidemias, mitochondrial, e.g.)

11:20 AM – 12:00 NOON

#### Pediatric Neurology Through Clinical Cases II

Marissa Digiovine, MD

- Mendelian-inherited diseases
- Mitochondrial disorders
- Trinucleotide repeat disorders
- Other genetic disorders/mechanisms
- Polymerase chain reaction

12:00 NOON – 1:00 PM Lunch (on your own)

1:00 PM – 1:45 PM

#### Movement Disorders Through Clinical Cases

Nabila Dahodwala, MD

- Hyperkinetic disorders – including: tremor, tardive dyskinesia
- Hypokinetic disorders – Parkinson's disease, parkinsonism

1:45 PM – 2:30 PM

#### Epilepsy and EEG Through Clinical Cases

Taneeta M. Ganguly, MD

- Epileptic phenomena, pseudo-seizures
- Genetics of epilepsy
- Anticonvulsants

2:30 PM – 3:05 PM

#### Neuromuscular Diseases Through Clinical Cases

Raymond Price, MD

- Neuropathies
- Myopathies
- Disorders of neuromuscular transmission

3:05 PM – 3:15 PM Break

3:15 PM – 4:30 PM

#### CNS and Systemic Infections/Virology/Psychiatric/Neurologic Problems Associated with Medical Disease Through Clinical Cases

Amy Pruitt, MD

- Infections and CSF profiles
- Molecular neurology of prion diseases and slow viruses
- Antibiotics/antimicrobials/vaccines
- Cardiac
- Renal
- Hematologic
- Skin – except phakomatoses
- Effects of radiation and chemotherapy

4:30 PM – 5:15 PM

#### Memory Disorders With Cortical Changes With Dysfunction

Geoffrey Aguirre, MD, PhD

- Memory and amnesias
- Mild cognitive impairment
- Dementias including Alzheimer's, frontotemporal, and vascular delirium

5:15 PM – 5:45 PM

#### Behavioral Neurology Through Clinical Cases

Geoffrey Aguirre, MD, PhD

- Behavioral Neurology Application

5:45 PM Adjourn



**LIVE VIRTUAL**

# AGENDA

## MOCK EXAMINATION/DISCUSSION

The Mock Exam is held in real-time according to the agenda.  
All times are EDT.

### Tuesday, June 7, 2022

7:45 AM – 8:00 AM

**Sign-In**

8:00 AM – 8:15 AM

**Description of the Board Exam**

*Raymond Price, MD*

8:15 AM – 10:00 AM

**Mock Examination Part I**

100 Questions

10:00 AM – 10:15 AM

**Self-scoring of Mock Examination Part I**

10:15 AM – 10:30 AM    Break

10:30 AM – 11:45 AM

**Discussion**

*Christopher Perrone, MD*

*Raymond Price, MD*

*Laura Stein, MD*

11:45 AM – 12:45 PM    Lunch

12:45 PM – 2:30 PM

**Mock Examination Part II**

100 Questions

2:30 PM – 2:45 PM

**Self-scoring of Mock Examination Part II**

2:45 PM – 3:00 PM    Break

3:00 PM – 4:15 PM

**Discussion**

*Michael Baer, MD, MBE*

*Kyra O'Brien, MD*

*Raymond Price, MD*

*Laura Stein, MD*

4:15 PM    Adjourn

### Wednesday, June 8, 2022

7:45 AM – 8:00 AM

**Sign-In**

8:00 AM – 8:15 AM

**Description of the Recert Exam**

*Raymond Price, MD*

8:15 AM – 10:00 AM

**Mock Examination Part I**

100 Questions

10:00 AM – 10:15 AM

**Self-scoring of Mock Examination Part I**

10:15 AM – 10:30 AM    Break

10:30 AM – 11:45 PM

**Discussion**

*Whitley Aamodt, MD*

*Sona Narula, MD*

*Raymond Price, MD*

*Laura Stein, MD*

11:45 AM – 12:45 PM    Lunch

12:45 PM – 2:30 PM

**Mock Examination Part II**

100 Questions

2:30 PM – 2:45 PM

**Self-scoring of Mock Examination Part II**

2:45 PM – 3:00 PM    Break

3:00 PM – 4:15 PM

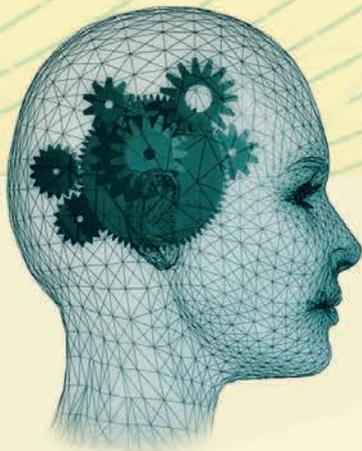
**Discussion**

*Raymond Price, MD*

*Michael Rubenstein, MD*

*Laura Stein, MD*

4:15 PM    Adjourn



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## SESSION 2 – Pre-recorded Case-based learning

### Neuroanatomy Through Clinical Cases

*Raymond Price, MD*

- Neuroanatomy Application of Recorded Talks

### Neuro-ophthalmology Through Clinical Cases

*Ali Hamedani, MD*

- Afferent Neuro-ophthalmology  
Application of Recorded Talks
- Efferent Neuro-ophthalmology  
Application of Recorded Talks

### Neuropathology Through Clinical Cases

*Raymond Price, MD*

- Neuropathology Application of Recorded Talks

### Sleep Through Clinical Cases

*David Raizen, MD, PhD*

- Normal Sleep Physiology
- Sleep Disorders and Treatment

### Psychiatry and Substance Abuse Through Clinical Cases

*Robert M. Weinrieb, MD*

- Phenomena of withdrawal, tolerance, etc.
- Therapy-medication and psychological
- Personality-genetic and environmental influences
- Neurologic side effects of alcohol and substance abuse

### Neuro-Immunology Through Clinical Cases

*Dina Jacobs, MD*

- Molecular pathogenesis of multiple sclerosis
- Immunotherapy in multiple sclerosis

### Neuroimaging Through Clinical Cases

*John Woo, MD*

- MRI, MRA, and MRV (exclusive of material in Neurovascular section)
- CT scan
- Angiography (exclusive of material in Neurovascular section)

### Headache Through Clinical Cases

*Katherine Hamilton, MD*

- Migraine diagnosis and treatment (prophylactic and abortive)
- Other types (tension, cluster, chronic daily, medication overuse)

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## Prerecorded Didactics

Neuroanatomy

Neurochemistry

Neuroendocrinology

Neuropathology

Neurovascular

Neuro-ophthalmology

Neuromuscular

Neurophysiology

Neurogenetics

Neuroradiology

Neuro-oncology

Neuro-infectious

Metabolic Disorders

Phakomatoses

Development and Disorders of Childhood

Movement Disorders

Neuroimmunology/MS

Altered States of Consciousness

Neuropsychology

EEG/Epilepsy

Headache

Sleep

Psychiatry and Substance Abuse

Neurology and Systemic Disease

Cognitive

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## Topics Covered in Online Syllabus Without Talks

### Cerebrospinal Fluid

- Normal CSF Constituents and Volume
- Ventricular System; CSF Pathways
- Pathologic CSF Patterns (Cellular, Chemical Enzymatic, Serologic)

### Physician-patient Relationship

- Interview Techniques and Mental Status Testing
- Management of Difficult Patients
- Relationship with Other Professionals
- Particularly Common “Errors”
- Death and Dying, Normal Grief vs. Depression
- Role of Physician Attitudes in Therapy
- Therapy in Liaison Psychiatry
- Legal Responsibilities
- Factitious Phenomena
- Suicide

### Neuropharmacology

- Antioxidants
- Autonomic Agents
- Neurologic Side Effects of Systemic Drugs

### Forensic Psychiatry and Neurology, Epidemiology, Transcultural Psychiatry, Public Mental Health, and Systems-based Practice

- Forensic Psychiatry/Neurology
- Epidemiology
- Transcultural Psychiatry
- Community Psychiatry, Public Mental Health
- Systems-based Practice



**Course Director and Faculty are all part of the University of Pennsylvania Health System and Children's Hospital of Philadelphia, Philadelphia, PA**

**Course Director**

**Raymond S. Price, MD**

*Associate Professor of Clinical Neurology*

*Director, Neurology Residency*

**Co-Course Director**

**Laura Stein, MD**

*Assistant Professor of Neurology*

**Faculty – Department of Neurology**

**Whitley Aamodt, MD**

*Movement Disorders Fellow*

**Geoffrey K. Aguirre, MD, PhD**

*Associate Professor of Neurology*

**Michael Baer, MD, MBE**

*Neuromuscular Fellow*

**Shawn J. Bird, MD**

*Professor of Neurology*

*Director, Electromyography Laboratory*

**Nabila Dahodwala, MD**

*Associate Professor of Neurology*

**Marissa Digiovine, MD**

*Assistant Professor of Neurology and Pediatrics*

**Lauren B. Elman, MD**

*Associate Professor of Neurology*

**Taneeta M. Ganguly, MD**

*Assistant Professor of Clinical Neurology*

**Ali Hamedani, MD**

*Clinical Instructor*

**Katherine Hamilton, MD**

*Assistant Professor of Neurology*

**Dina A. Jacobs, MD**

*Associate Professor of Neurology*

*Associate Director, MS Center*

**Eric Lancaster, MD, PhD**

*Assistant Professor of Neurology*

**Kathleen Lawler, DPhil, ABPP**  
*Clinical Assistant Professor of  
Neuropsychology in Neurology*

**Grant Liu, MD**  
*Professor of Neurology  
and Ophthalmology*

**Eric Marsh, MD, PhD**  
*Associate Professor of Neurology  
and Pediatrics*

**Michael L. McGarvey, MD**  
*Associate Professor of Neurology*

**Steven R. Messé, MD**  
*Professor of Neurology*

**James Morley, MD, PhD**  
*Assistant Professor of Neurology*

**Sona Narula, MD**  
*Assistant Professor of Clinical Neurology*

**Kyra O'Brien, MD**  
*Instructor A of Neurology*

**Chris Perrone, MD**  
*Assistant Professor of Neurology*

**John Pollard, MD**  
*Adjunct Professor of Neurology*

**Amy A. Pruitt, MD**  
*Professor of Neurology  
Director, General Neurology Division*

**David Raizen, MD, PhD**  
*Associate Professor of Neurology*

**Michael Rubenstein, MD**  
*Assistant Professor of Clinical Neurology*

#### **Faculty – Department of Psychiatry**

**Louis Littman, MD, PhD**  
*Clinical Assistant Professor of Psychiatry*

**Christopher Perrone, MD**  
*Associate Clerkship Director  
Assistant Professor of Clinical Neurology*

**Robert M. Weinrieb, MD**  
*Associate Professor of Psychiatry  
Chief Psychiatric Consultant,  
Liver Transplant Service  
Chief of Consultation Liaison Psychiatry*

#### **Faculty – Department of Radiology**

**John H. Woo, MD**  
*Associate Professor of Radiology*

#### **Disclosures**

Penn Medicine, Office of Continuing Medical and Interprofessional Education, adheres to the *ACCME Standards for Integrity and Independence in Accredited Continuing Education*. Faculty disclosure information will be made available in the conference materials and syllabi. Faculty members are also expected to disclose products or devices within to participants any discussions of off-label and/or investigational uses of pharmaceutical products within their presentations.

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**Services for the Disabled** If special arrangements are required for an individual with a disability to participate this meeting, please contact the Office of Continuing Medical and Interprofessional Education no later than May 23, 2022, at 215-898-6400.

**Nondiscrimination Statement** The University of Pennsylvania values diversity and seeks talented students, faculty, and staff from diverse backgrounds. The University of Pennsylvania does not discriminate on the basis of race, sex, sexual orientation, gender identity, religion, color, national or ethnic origin, age, disability, or status as a Vietnam Era Veteran or disabled veteran in the administration of educational policies, programs or activities; admissions policies; scholarship and loan awards; athletic, or other University administered programs or employment. Questions or complaints regarding this policy should be directed to Executive Director, Office of Affirmative Action and Equal Opportunity Programs, 3600 Chestnut Street, Sansom Place East Suite 228, Philadelphia PA 19104-6106 or 215-898-6993 (Voice) or 215-898-7803 (TDD). [www.upenn.edu/affirm-action](http://www.upenn.edu/affirm-action).

The 19th Annual  
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**LIVE VIRTUAL**

Live Presentations  
June 6, 2022

Written Mock Exam  
with Discussion  
June 7-8, 2022

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<https://upenn.cloud-cme.com/NBR2022>

Questions? Contact us at:

Phone: 215-898-6400 or 215-898-8005 • [penncme@penncme.upenn.edu](mailto:penncme@penncme.upenn.edu)

Please note we are unable to accept faxed or mailed registration forms with credit card payment.

Please print or type

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Name (First) (Last)

\_\_\_\_\_  
Academic Degree

\_\_\_\_\_  
Medical Specialty

\_\_\_\_\_  
Affiliation (Hospital, Office, or Company)

\_\_\_\_\_  
Address (  Affiliation or  Home)

\_\_\_\_\_  
City State Zip

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Phone Fax

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E-mail

**Registration Fees** (pre-payment is required to be officially registered)

- \$1,295 for practicing physicians
- \$995 for residents and fellows

**Optional Purchases:**

(Must register and pay for course in order to purchase any additional options)

**Option 1:** Live Virtual Mock Exam – June 7-8, 2022

- \$500 for all registrants

**Option 2:** Mock exam, 4 board-style questions every other day, and 800 additional questions

- \$825 for all registrants

**Option 3:** Extended Access to the Pre-recorded and Board-Style Questions

- \$200 for access through February 10, 2023

Please total registration payment and optional purchases

Total: \$ \_\_\_\_\_

**Payment Method**

- If you are paying by check or credit card, register online at <https://upenn.cloud-cme.com/NBR2022>
- If you are paying by check, you may mail your completed registration form and check made payable to **The Trustees of the University of Pennsylvania/CME** to: Conference Manager, Office of Continuing Medical & Interprofessional Education, Academic Programs, Penn Medicine, JMec, SPE, 6th floor 3400 Civic Center Blvd, Bldg. 421, Philadelphia, PA 19104-5162