Introduction

The Internal Medicine Certification Program, developed by the American Osteopathic Board of Internal Medicine, is designed to recognize excellence among those individuals who provide care in the field of internal medicine. The program will have three components:

- Satisfactory completion of internal medicine residency training
- Approval of formal application and accompanying documentation
- Successful performance on a comprehensive one-day examination

Description of the Examination

The Internal Medicine Certifying Examination will be a computer-based, one-day examination. The examination consists of a morning and afternoon session. The maximum duration of each session will be 3.5 hours and each session will consist of 160 multiple-choice questions of the "one best answer" type. A scheduled lunch break will be scheduled between the morning and afternoon session. Each session will cover the broad aspects of internal medicine that internists caring for the adult patient are expected to know. The examination will cover the understanding of the scientific basis of the problems involved in internal medicine, and the diagnosis and management of various clinical problems in which history, physical examination, and clinical data is provided. There will be visual material to interpret which may include but not be limited to: Imaging techniques (radiographs, CTs, scans, etc.), urinalyses, peripheral blood smears, gram stains, biopsy material, electrocardiograms, echocardiograms, hemodynamic data, physical findings, clinical laboratory results, and pulmonary function studies.

Examination Content

The questions on the examination are chosen so that the content covered is consistent with a blueprint or table of specifications developed by the Board. The blueprint is reviewed and revised annually to ensure that it is current and that the content reflects both the breadth of medicine and the importance of various conditions. The examination for both sessions follows the examination blueprint.

Approximately 89% of the questions test knowledge in the traditional subspecialties of internal medicine such as: allergy, cardiovascular, endocrinology, gastroenterology, hematology, infectious disease, nephrology, neurology, oncology, pulmonary diseases, and rheumatology. The remaining questions test in the following areas: dermatology, otorhinolaryngology, women's health, ophthalmology, psychiatry, and other miscellaneous areas. Approximately 33% of the questions cover content that spans the subspecialties. These cross-content areas include: adolescent medicine, bioethics, critical care medicine, clinical epidemiology, disease prevention, geriatric medicine, nutrition, occupational medicine, and substance abuse. Approximately 60% of the items relate to ambulatory situations, 27% relating to the inpatient and 13% to the intensive care setting. Questions requiring simple recall of medical facts or fund of knowledge comprise approximately 5% of the examination, questions requiring comprehension comprise 16% and questions requiring application of knowledge to clinical situations comprise 79% of the examination. A blueprint representing content distribution is shown below.
Certification Examination Blueprint

<table>
<thead>
<tr>
<th>Specialties</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy/Immunology</td>
<td>3%</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>12%</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>9%</td>
</tr>
<tr>
<td>Hematology</td>
<td>6%</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>11%</td>
</tr>
<tr>
<td>Oncology</td>
<td>8%</td>
</tr>
<tr>
<td>Nephrology/Hypertension</td>
<td>10%</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>8%</td>
</tr>
<tr>
<td>Pulmonary diseases</td>
<td>11%</td>
</tr>
<tr>
<td>Infectious disease</td>
<td>10%</td>
</tr>
<tr>
<td>Dermatology</td>
<td>2%</td>
</tr>
<tr>
<td>Otorhinolaryngology</td>
<td>1%</td>
</tr>
<tr>
<td>Neurology</td>
<td>4%</td>
</tr>
<tr>
<td>Obstetrics/Gynecology</td>
<td>1%</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>1%</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>1%</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2%</td>
</tr>
</tbody>
</table>

Total: 100%

Cross-Content Areas

<table>
<thead>
<tr>
<th>Specialties</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adolescent medicine</td>
<td>2%</td>
</tr>
<tr>
<td>Bioethics</td>
<td>1%</td>
</tr>
<tr>
<td>Critical care medicine</td>
<td>8%</td>
</tr>
<tr>
<td>Clinical epidemiology</td>
<td>2%</td>
</tr>
<tr>
<td>Disease prevention</td>
<td>4%</td>
</tr>
<tr>
<td>Geriatric medicine</td>
<td>5%</td>
</tr>
<tr>
<td>Nutrition</td>
<td>2%</td>
</tr>
<tr>
<td>Occupational medicine</td>
<td>2%</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>2%</td>
</tr>
<tr>
<td>OMM/OPP</td>
<td>2%</td>
</tr>
</tbody>
</table>

Examination Development

Considerable time and care is taken in developing the examination. Each board member is given an assignment for writing questions based upon the blueprint and table of specifications. The questions are submitted and edited for universal writing format. Each question is then reviewed by a panel of 11 Board members (composed of general internists and subspecialists sitting together around a table). The questions at that time are either accepted, rejected, or accepted with revision. After agreement on each item by all 11 examiners the item is then edited once again for universal format. The item is then returned to the original author for final proofing and approval. Some questions may be pre-tested and do not count in the final scores of candidates.

Cancellations/Refunds

Cancellations for the examination must be submitted to the Board in writing. A cancellation fee of $100 will be retained by the Board for all cancellations prior to February 1, 2017. A cancellation fee of $400 will be retained by the Board for all cancellations postmarked between February 1 and April 1, 2017. Applicants cancelling after April 1, 2017 will forfeit the entire fee.
Examination Day Schedule

A. Location and time of Examination: The examination will be held at 200 PearsonVUE computer sites nationwide. The examination will begin Wednesday morning, September 14, 2017, at 8:00 a.m. Specific instructions regarding time, location, and other details will be supplied by PearsonVUE after the candidate registers with PearsonVUE.

B. Admission to the Examination: Prior to June 15th you will receive an admission letter to the examination. This admission letter will contain your identification number, which you must supply to PearsonVUE at the time of registration to the examination. Specific information regarding entry to the examination, registration, testing center locations, tutorial, practice examination, and candidate rules are contained in the letter of acceptance in this mailing.

Address Changes

Registered candidates must notify the Board office, in writing preferably via email, of any changes in mailing address, e-mail address, and contact telephone number prior to or after the certifying examination. Online changes once registration is completed can be made only by the Board office and not by the applicant.

Notification of Examination Results

Candidates will be informed by mail of the results of the examination prior to December 1, 2017. Examination results will not be released over the telephone, email or by FAX. On written request and payment of a fee of two-hundred dollars ($200), candidates may obtain a review of their scoring for any errors that may have occurred if requested within one month of receiving the results.

Disabled Candidates

PearsonVUE will, when possible, offer the certifying examination in a place and manner that is accessible to individuals with disabilities and, when necessary, alternative accessible arrangements under comparable conditions to those provided for nondisabled individuals are offered to disabled individuals. Candidates who may need accommodation during the examination for a disability must provide a written request to the Board at the time of application for examination or prior to April 1st of the examination year. The candidate must provide details of accommodations previously provided by the NBOME or equivalent testing organization and related documentation in writing no later than six months prior to the date of the examination. An evaluation and assessment of the disability with a written report supplied to the Board by a credible body must have been completed within three years of the date of examination.

Policy Regarding Adverse Testing Conditions

The following policies apply in the event any adverse condition (e.g., unreasonable and substantially distracting noise or other activity) occurs or is alleged to occur during the administration of any computer-based examination.

If a candidate believes that the testing conditions have or will substantially and adversely affect their performance on the examination, the candidate must immediately bring that circumstance to the attention of the test center staff. If the condition is not resolved to the satisfaction of the candidate at the test site, then the candidate may choose one of the two following options:

1. Continue examination. If the candidate elects to continue with the examination, the candidate will have been deemed to have accepted the conditions of the testing environment, and his or her examination will be scored and reported in the normal course and the candidate shall have no recourse against the AOBIM, its testing vendor or their employees, agents or representatives; or
2. Withdraw from examination. If the candidate chooses to withdraw from the examination prior to its completion then the examination shall be voided and not scored, and the following shall apply:

   A. If the test center staff verifies to the AOBIM that the condition complained of did not exist or that it existed but did not or would not have substantially and adversely affected the candidate’s performance on the examination, the candidate may not reschedule to take the examination until the next regularly scheduled examination, must pay a full examination fee, and may not elect to withdraw from any future AOBIM examination.

   B. If the test center staff verifies to the AOBIM that the condition complained of did exist and that it did or would have substantially and adversely affected the candidate’s performance of the examination, the candidate may reschedule the examination at the next regularly scheduled examination date and will not be assessed any additional fee. The examination to the extent completed will be voided and not reported.

If a candidate withdraws from the examination prior to completion of the examination because of any adverse testing condition, the candidate must provide to the AOBIM within ten days following the date of their withdrawal credible and verifiable written evidence of the adverse testing condition, in addition to immediately reporting such circumstance to the test center staff at the time of the examination. Failure to comply with this requirement, will result in the candidate waiving any objection to the testing conditions of the examination, and shall have no recourse against the AOBIM, its testing vendor or their employees, agents or representatives. Any and all findings and determinations of the AOBIM shall be final and conclusive.

**Examination Day Protocol**

Items that cannot be brought into the examination room will be detailed when you receive your registration letter. Also specific identification procedures and protocol are included in that mailing.

**Certification**

Those who pass the examination will become certified as Diplomates of the American Osteopathic Board of Internal Medicine and awarded a certificate time-limited to ten years. If all requirements have been completed and approved, final approval of certification by the AOA Bureau of Osteopathic Specialists will occur on or before March 1, 2018.

Approximately 90 days after official notification of certification by the AOA, a certificate will be mailed to the recently certified candidates. The effective date of the certificate will be September 15, 2016.

**Submission of Training Documents to the American College of Osteopathic Internists and to this Board**

All Resident Annual Reports must be submitted to the American College of Osteopathic Internists no later than August 1, 2017. For those who have completed their training prior to 2017, all resident annual reports for all three years must be approved by the American College of Osteopathic Internists by March 1, 2017 in order to sit for the examination. All three years of training must be approved prior to certification and each year of training must proceed sequentially through two levels of approval: Approval by the Council on Education and Evaluation of the American College of Osteopathic Internists, followed by the AOA Committee of Postdoctoral Training. Each of the above approval bodies meets at least on a quarterly basis to approve trainee documents. **For first-time takers a copy of the residency certificate(s) indicating completion of residency training must be submitted to this Board prior to examination.** Examination results are not
release until the residency certificate is received by this office, the ACOI has verified that all training
documents are approved and complete and active membership in the AOA is maintained.

Sample Items

Enclosed are test items illustrative of the items on the certification examination. The items do not contain all
content areas. Items 1-15 are representative of fund of knowledge type questions which comprise only about
10% of the exam. Items 16-30 are representative of application type questions which comprise about 90% of
the exam. The items in this booklet have appeared on previous examinations but will not appear on this year's
examination or a future examination. The items are included in order to provide examples of the type and
format of questions you will expect to see. You should be able to answer the first 15 questions in less than 18
minutes and the last 11 questions in less than 15 minutes. Imaging studies, ECGs, and photographs are
incorporated into many of the questions.

1. Which one of the following clinical parameters best suggests that suspected aortic stenosis is mild?
   a. Presence of systolic arterial hypertension
   b. Presence of associated aortic regurgitation
   c. Peaking of the murmur in early systole
   d. Absence of left ventricular hypertrophy by ECG
   e. Presence of associated mitral regurgitation

2. A 35-year-old male has just been diagnosed with essential hypertension. He has heard about sexual
dysfunction from antihypertensives and states that he will agree to an antihypertensive only if
impotence is not a potential side effect. Which one of the following drugs should be prescribed?
   a. Atenolol
   b. Hydrochlorothiazide
   c. Lisinopril
   d. Clonidine
   e. Triamterene

3. The severity criteria for mild persistent asthma includes:
   a. Symptoms each day
   b. Night time symptoms less than 2 times a month
   c. Peak flow below 80%
   d. FEV\textsubscript{1.0} above 80%
   e. Peak flow variability below 20%

4. The three most common causes of cough lasting longer then six weeks in a non-smoker with a
normal chest x-ray are:
   a. Lung cancer, GERD, asthma
   b. Asthma, chronic bronchitis, GERD
   c. Bronchiectasis, chronic bronchitis, asthma
   d. Asthma, GERD, post-nasal drip
   e. Post-nasal drip, lung cancer, asthma

5. Platelet transfusion should be most strongly considered in which one of the following
thrombocytopenic disorders with a platelet count of 20,000/mm\textsuperscript{3}?
   a. Heparin-induced thrombocytopения
   b. Thrombotic thrombocytopenia purpura
   c. ITP
   d. Chemotherapy induced thrombocytopения
6. Which one of the following would most likely respond to combination cyclophosphamide/prednisone therapy?
   a. Membranoproliferative glomerulonephritis
   b. ANCA - associated idiopathic crescentic glomerulonephritis
   c. IgA nephropathy
   d. Postinfectious glomerulonephritis
   e. Focal glomerulosclerosis

7. Which one of the following is characteristic of lupus nephritis?
   a. High incidence of recurrence in transplanted kidneys
   b. High response to steroids in the membranous lesion
   c. Linear immunofluorescence on renal biopsy
   d. Rare conversion of one lupus histologic lesion to another
   e. Lack of high degree of correlation between clinical parameters and specific histologic lupus lesions

8. In the patient with severe diarrhea, which one of the following is the most effective oral volume replacement fluid?
   a. Plain water
   b. Water with electrolytes
   c. Sugar or rice water
   d. Sugar or rice water with electrolytes
   e. Diet sodas

9. When ordering a dual energy x-ray absorptiometry (DEXA) scan in the evaluation of bone mineral density, results are compared to young normals (“T score”) and age matched controls (“Z score”). Which one of the following statements is true regarding these measurements?
   a. The Z score predicts fracture risk
   b. A low Z score along with a low T score should prompt an investigation for secondary causes of osteoporosis
   c. The definition of osteoporosis is based on the combination of the T and Z scores
   d. T scores will decrease as bone density improves
   e. A normal T score and high Z score is indicative of post-menopausal osteoporosis

10. The most common cause of recurrent urinary tract infection in men is:
    a. Chronic bacterial prostatitis
    b. Anticholinergic drugs
    c. Urethral stricture
    d. Renal calculi
    e. Neurogenic bladder

11. Of the drugs listed below, which one would be best for the short term treatment of insomnia in a geriatric patient?
    a. Diazepam (Valium)
    b. Flurazepam (Dalmane)
    c. Doxepin (Sinequan)
    d. Oxazepam (Serax)
    e. Haloperidol (Haldol)
12. To relieve the immobility that is occurring just prior to the next Sinemet dose, the best treatment should be:
   a. Add amantidine (Symmetrel) 100 mg bid
   b. Add benztropine (Cogentin) 2 mg tid
   c. Instruct the patient to take the levodopa with meals
   d. Change the Sinemet to 25/100 qid
   e. Add selegiline (Eldepryl) q am and q noon

13. A 24-year-old male presents with acute ulcerative proctocolitis. He reports a past history of kidney stones and an allergy to sulfa drugs. Which one of the following treatment options would you advise?
   a. Mesalamine retention enemas
   b. Oral sulfasalazine
   c. Oral sulfasalazine plus steroid retention enemas
   d. Oral prednisone plus steroid retention enemas
   e. Oral metronidazole

14. The most common central nervous system tumor in adults is:
   a. Oligodendroglioma
   b. Meningioma
   c. Medulloblastoma
   d. Ependymoma
   e. Astrocytoma

15. A 23-year-old female presents with year-round nasal stuffiness. She has no history of asthma or eczema. Her symptoms worsen in the Spring and Fall. The best test to determine a specific diagnosis is:
   a. Blood eosinophil count
   b. Elimination diet testing
   c. Skin testing for environmental allergies
   d. A nasal secretion smear for eosinophils
   e. Radioallergosorbant testing (RAST) for IgE

16. A 58-year-old female presents with acute pulmonary edema. A holosystolic murmur is noted. Severe mitral regurgitation is confirmed by echocardiogram. The mitral valve apparatus is not calcified and there is significant prolapse of the posterior leaflet. Angiogram shows a 60% stenotic left anterior descending lesion and an ejection fraction of 58%. The patient also has a history of GI hemorrhage and angiodysplasia. You should recommend:
   a. Valve replacement
   b. Valve repair
   c. Medical therapy with close follow-up for deterioration of left ventricular function
   d. PTCA of the left anterior descending
   e. Chronic intravenous inotropic therapy and cardiac transplant if necessary

17. A 65-year-old male is seen for cough, sputum production and a fever of 100°F. He is noted to have an infiltrate in the right upper lobe. Past history reveals that he had a pneumonia in the same location three months ago and a 60-pack year smoking history. He is placed on an oral second generation cephalosporin. He improves clinically but six weeks later the infiltrate is unchanged. Your next step should be:
a. V/Q scan
b. No further evaluation needed
c. Pulmonary consultation for bronchoscopy
d. Repeat chest x-ray in another 6 weeks
e. Three weeks of therapy directed towards *Pseudomonas*

18. A 52-year-old farmer is seen for evaluation of cough and dyspnea. He has been ill for several weeks but cannot relate an exact time of onset. He denies fevers, chills and sputum production. He raises cash crops and hay, and makes his own silage from corn. He raises beef cattle but no other domestic animals. Examination reveals no clubbing, crackles or wheeze. Chest x-ray shows interstitial infiltrates with some small nodules. You should suspect:

a. Asthma
b. Farmer’s lung
c. Hog breeder’s lung
d. Inorganic dust toxic syndrome
e. Silo-filler’s disease

19. A 55-year-old male presents with hematuria, abdominal pain and a flank mass. An MRI shows a 3 cm complex mass in the right kidney with extension to the renal vein and into the inferior vena cava. A CT of the chest is normal. The most appropriate next step is:

a. Right radical nephrectomy
b. Methotrexate, vincristine, adriamycin, cisplatin (MVAC)
c. High dose interferon
d. Hospice referral
e. Low dose interleukin-2

20. A previously healthy 70-year-old male is diagnosed with polycythemia. He is normotensive and does not smoke. At diagnosis his hematocrit is 65%, WBC count 12,500/mm$^3$, and platelet count 625,000/mm$^3$. He is begun on weekly phlebotomy until his hematocrit is decreased to 45%. At that point his platelet count is increased to 1.2 million/mm$^3$ and he suffers a mild stroke. A decision is made to institute therapy to lower his platelet count. Which one of the following drugs would be expected to have the lowest risk of causing secondary acute myelogenous leukemia?

a. Hydroxyurea
b. Chlorambucil
c. Radioactive P-32
d. Melphalan
e. Agrylin (anagrelide)

21. A 32-year-old female with a history of cervical carcinoma presents to the office for a routine followup visit. Her laboratory results reveal a BUN of 74 mg/dL and serum creatinine 6.6 mg/dL. During a visit two months ago the BUN was 10 mg/dL and serum creatinine 0.7 mg/dL. Which one of the following would rule out bilateral ureteral obstruction as the cause of the patient’s azotemia?

a. Average daily urine output of 1500 mL during last two weeks
b. FE$\text{Na}^+$ of 0.4%
c. Serum electrolytes revealing a potassium of 5.5 mEq/L and a serum HCO$_3^-$ of 12 mEq/L
d. Urine sediment revealing no casts
e. Slightly enlarged kidneys on renal ultrasound

22. An 84-year-old female is evaluated at the nursing home where she resides for complaints of dysuria and frequency. A urine culture grows greater than 100,000 gram negative rods. Upon reviewing the urinalysis results, you note the presence of 50-100 white blood cells/hpf but that the nitrite test is
negative. In the absence of a false negative screen for nitrite, the most likely explanation for these findings is infection with:

a. *Escherichia coli*
b. *Proteus mirabilis*
c. *Klebsiella pneumoniae*
d. *Serratia marcescens*
e. *Pseudomonas aeruginosa*

23. A 47-year-old female with chronic glomerulonephritis and a serum creatinine of 5.8 mg/dL is evaluated for shoulder pain. Laboratory results are:

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium</td>
<td>7.8 mg/dL</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>4.9 mg/dL</td>
</tr>
<tr>
<td>i-PTH (intact parathyroid hormone)</td>
<td>452 ng/mL</td>
</tr>
</tbody>
</table>

The most appropriate initial treatment of this problem is:

a. Aluminum based phosphate binders
b. Calcium based phosphate binders
c. Oral 1,25 dihydroxy vitamin D₃
d. Parenteral 1,25 dihydroxy vitamin D₃
e. Non-calcemic parenteral analogue of 1,25 dihydroxy vitamin D₃

24. A 77-year-old female with known Parkinson’s disease presents to the office with a chief complaint of sudden uncontrollable jerking movements and progressive disability. A family member confirms that the patient has had multiple episodes of "jerking" at unpredictable times of the day and that the patient is becoming progressively more immobile just prior to the next dose of Sinemet. The patient has had Parkinson’s for five years and is taking Sinemet 25/250 four times a day. On examination the patient has a resting tremor of her upper extremities, mouth and right foot. She also has cog-wheel rigidity, drooling and a festinating gait. Which one of the following is the most likely cause of the patient’s uncontrollable jerking movements?

a. Bradykinesia
b. Akathisia
c. Choreoathetosis
d. Secondary seizure disorder
e. Intention tremor

25. A 25-year-old pregnant female is seen in the emergency room for dyspnea and wheeze. She has had asthma since the age of 12 but stopped her medications when she became pregnant. She is now 24 weeks into her pregnancy and had an upper respiratory tract infection two days ago. She is using her albuterol every 20-30 minutes. Her room air saturation was 90% and she is using her accessory muscles. Very diminished breath sounds and diffuse wheezing were present. The most important aspect of her management for the next 24 hours would be:

a. Inhaled corticosteroids
b. Inhaled nedocromil (Tilade)
c. IV corticosteroids
d. Sedation and mechanical ventilation
e. Theophylline

26. A 45-year-old female presents with a two year history of widespread joint and muscle aching and sleep disturbance. On examination tender points are found in numerous musculoskeletal areas. The joint examination and all laboratory studies including CBC, ESR, CK, urinalysis, calcium, alkaline
phosphatase, BUN, serum creatinine, TSH and liver functions are normal. The most likely diagnosis is:

a. Fibromyalgia  
b. Hypothyroidism  
c. Lyme disease  
d. Rheumatoid arthritis  
e. Systemic lupus erythematosus

**SCHEDULE**

**February 1, 2017:**
Deadline for receipt of the application/examination fee ($800) and accompanying documentation

**February 1, 2017:**
Deadline to receive cancellation partial refund credit of $700

**April 1, 2017:**
Deadline to receive cancellation partial refund credit of $400

**April 1, 2017**
Late registration deadline. Examination fee for late registrations is $1000.

**August 1, 2017:**
Deadline for submission of Resident Annual Reports to the American College of Osteopathic Internists (see explanation, pages 5-6)

**September 14, 2017:**
Date of Internal Medicine Certifying Examination