Infectious Disease Certification Examination Blueprint

Purpose of the exam

The exam is designed to evaluate the knowledge, diagnostic reasoning, and clinical judgment skills expected of the certified infectious disease specialist in the broad domain of the discipline. The ability to make appropriate diagnostic and management decisions that have important consequences for patients will be assessed. The exam may require recognition of common as well as rare clinical problems for which patients may consult a certified infectious disease specialist.

Exam content

Exam content is determined by a pre-established blueprint, or table of specifications. The blueprint is developed by ABIM and is reviewed annually and updated as needed for currency. Trainees, training program directors, and certified practitioners in the discipline are surveyed periodically to provide feedback and inform the blueprinting process.

The primary medical content categories of the blueprint are shown below, with the percentage assigned to each for a typical exam:

<table>
<thead>
<tr>
<th>Medical Content Category</th>
<th>% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial Diseases</td>
<td>27%</td>
</tr>
<tr>
<td>Human Immunodeficiency Virus (HIV) Infection</td>
<td>15%</td>
</tr>
<tr>
<td>Antimicrobial Therapy</td>
<td>9%</td>
</tr>
<tr>
<td>Viral Diseases</td>
<td>7%</td>
</tr>
<tr>
<td>Travel and Tropical Medicine</td>
<td>5%</td>
</tr>
<tr>
<td>Fungi</td>
<td>5%</td>
</tr>
<tr>
<td>Immunocompromised Host (Non-HIV Infection)</td>
<td>5%</td>
</tr>
<tr>
<td>Vaccinations</td>
<td>4%</td>
</tr>
<tr>
<td>Infection Prevention and Control</td>
<td>5%</td>
</tr>
<tr>
<td>General Internal Medicine, Critical Care, and Surgery</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Exam questions in the content areas above may also address clinical topics in clinical syndromes and general internal medicine that are important to the practice of infectious disease.

**Exam format**

The exam is composed of multiple-choice questions with a single best answer, predominantly describing patient scenarios. Questions ask about the work done (that is, tasks performed) by physicians in the course of practice:

- Making a diagnosis
- Ordering and interpreting results of tests
- Recommending treatment or other patient care
- Assessing risk, determining prognosis, and applying principles from epidemiologic studies
- Understanding the underlying pathophysiology of disease and basic science knowledge applicable to patient care

Clinical information presented may include patient photographs, radiographs, electrocardiograms, recordings of heart or lung sounds, and other media to illustrate relevant patient findings.


The blueprint can be expanded for additional detail as shown below. Each of the medical content categories is listed there, and below each major category are the content subsections and specific topics that *may* appear in the exam. The inherent complexity of the field of infectious disease leads to considerable overlap in content categories, and each question can only be assigned to a single blueprint topic. Thus, a question addressing the cause of fever and rash likely would be classified under the specific organism, while a similar question addressing the treatment of that same illness would be classified under the antimicrobial agent used.

*Please note:* actual exam content may vary.
Bacterial Diseases

<table>
<thead>
<tr>
<th>Gram-positive cocci</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Staphylococcus aureus</em></td>
</tr>
<tr>
<td><em>Streptococcus</em></td>
</tr>
<tr>
<td><em>Enterococcus</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gram-positive rods</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Listeria</em></td>
</tr>
<tr>
<td><em>Corynebacterium</em></td>
</tr>
<tr>
<td><em>Bacillus</em></td>
</tr>
<tr>
<td><em>Erysipelothrix</em></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Gram-negative cocci and coccobacilli</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Neisseria</em></td>
</tr>
<tr>
<td><em>Haemophilus</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gram-negative rods</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Enterobacteriaceae</em></td>
</tr>
<tr>
<td><em>Pseudomonas</em></td>
</tr>
<tr>
<td><em>Stenotrophomonas</em></td>
</tr>
<tr>
<td><em>Burkholderia</em></td>
</tr>
<tr>
<td><em>Acinetobacter</em></td>
</tr>
<tr>
<td><em>Aeromonas</em></td>
</tr>
<tr>
<td><em>Salmonella</em></td>
</tr>
<tr>
<td><em>Shigella</em></td>
</tr>
<tr>
<td><em>Campylobacter</em></td>
</tr>
<tr>
<td><em>Vibrio</em></td>
</tr>
<tr>
<td><em>Pasteurella</em></td>
</tr>
<tr>
<td><em>Yersinia</em></td>
</tr>
<tr>
<td><em>Legionella</em></td>
</tr>
<tr>
<td><em>Capnocytophaga</em></td>
</tr>
<tr>
<td><em>Bartonella</em></td>
</tr>
<tr>
<td><em>Brucella</em></td>
</tr>
<tr>
<td><em>Bordetella</em></td>
</tr>
<tr>
<td><em>Streptobacillus</em></td>
</tr>
<tr>
<td><em>Francisella</em></td>
</tr>
<tr>
<td><em>Helicobacter</em></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Anaerobes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram-positive cocci</td>
</tr>
<tr>
<td>Gram-positive rods</td>
</tr>
<tr>
<td>Gram-negative rods</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Actinomycetes</th>
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</thead>
<tbody>
<tr>
<td><em>Actinomyces</em></td>
</tr>
<tr>
<td><em>Nocardia</em></td>
</tr>
</tbody>
</table>
Spirochetes
   Treponema
   Borrelia
   Leptospira

Mycoplasma
   M. pneumoniae
   M. genitalium

Trophyyma whippelii

Chlamydia
   C. trachomatis
   C. pneumoniae
   C. psittaci

Rickettsia
   R. conorii
   R. akari
   R. rickettsii
   R. prowazekii
   R. typhi
   Orientia tsutsugamushi
   R. parkeri
   R. africae
   Coxiella burnetii

Ehrlichia
   E. chaffeensis
   E. ewingii
   Anaplasma phagocytophilum

Mycobacterium
   M. tuberculosis
   M. bovis
   M. lepra
   Nontuberculous mycobacteria

Syndromes characterized by bacterial pathogens
   Head and neck
   Respiratory
   Gastrointestinal
   Ophthalmologic
   Genitourinary
   Dermatologic (including skin and soft-tissue infections)
   Musculoskeletal
   Neurologic
   Cardiovascular
Human Immunodeficiency Virus (HIV) Infection

Epidemiology
- Transmission
- Testing and counseling
- Initial laboratory evaluation
- Prevention

Pathogenesis
- Virology
- Immunopathogenesis
- Acute HIV infection

Laboratory testing
- Diagnostic evaluation
- Baseline evaluation

HIV treatment regimens
- Antiretroviral therapy drug classes
- Adverse effects of treatment
- Drug-drug interactions
- When to start therapy
- Selection of optimal initial regimen
- Laboratory monitoring
- Treatment-experienced patients

Opportunistic infections (OIs)
- Prevention
- When to start HIV therapy in the context of active OIs
- Immune reconstitution inflammatory syndrome
- Bacteria
- Mycobacteria
- Fungi
- Parasites
- Viruses

Malignancies
- Kaposi's sarcoma
- Lymphoma
- Cervical cancer
- Anal cancer

Other complications of HIV
- Hematologic
- Endocrine
- Gastrointestinal
- Renal (HIV-associated nephropathy [HIVAN])
- Cardiac (HIV cardiomyopathy)
Pulmonary
Head, eye, ear, nose, and throat
Musculoskeletal
Neurologic
Psychiatric
Dermatologic

Related issues
Substance use
Organ transplantation
Primary care
Miscellaneous non-HIV-related complications that may occur more commonly in those who have HIV
Pregnancy

<table>
<thead>
<tr>
<th>Antimicrobial Therapy</th>
<th>9% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antibacterials</strong></td>
<td></td>
</tr>
<tr>
<td>Aminoglycosides</td>
<td></td>
</tr>
<tr>
<td>Antifolates</td>
<td></td>
</tr>
<tr>
<td>Carbapenems</td>
<td></td>
</tr>
<tr>
<td>Cephalosporins</td>
<td></td>
</tr>
<tr>
<td>Fluoroquinolones</td>
<td></td>
</tr>
<tr>
<td>Glycopeptides, glycolipopeptides, and lipopeptides</td>
<td></td>
</tr>
<tr>
<td>Lincosamides</td>
<td></td>
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<tr>
<td>Macrolides</td>
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<tr>
<td>Monobactams</td>
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<tr>
<td>Nitroimidazoles</td>
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<tr>
<td>Oxazolidinones</td>
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<tr>
<td>Penicillins</td>
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<tr>
<td>Polymyxins</td>
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<tr>
<td>Rifamycins</td>
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<tr>
<td>Streptogramins</td>
<td></td>
</tr>
<tr>
<td>Tetracyclines</td>
<td></td>
</tr>
<tr>
<td>Non-sulfonamide (sulfa drug), non-trimethoprim urinary tract agents</td>
<td></td>
</tr>
<tr>
<td>Topical antibacterials</td>
<td></td>
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<tr>
<td>Other routes of administration</td>
<td></td>
</tr>
</tbody>
</table>

**Antivirals (non-HIV)**
For influenza
For herpes simplex
For cytomegalovirus
For hepatitis C and respiratory syncytial virus (RSV)
For hepatitis B
Interferon alfa 2a and alfa 2b
For hepatitis C

**Pharmacology and outpatient parenteral antimicrobial therapy (OPAT)**

- Susceptibility testing
- Drug resistance
- ADME (absorption, distribution, metabolism, and excretion)
- Dosing
- Drug interactions
- Toxicity
- Outpatient parenteral antimicrobial therapy

### Viral Diseases 7% of Exam

<table>
<thead>
<tr>
<th>DNA viruses</th>
<th>RNA viruses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herpesviruses</td>
<td>Reoviridae (e.g., rotavirus)</td>
</tr>
<tr>
<td>Adenovirus</td>
<td>Togaviridae (e.g., chikungunya)</td>
</tr>
<tr>
<td>Papillomavirus</td>
<td>Flaviviridae</td>
</tr>
<tr>
<td>Polyomavirus</td>
<td>Coronaviridae</td>
</tr>
<tr>
<td>Poxviruses</td>
<td>Paramyxoviridae</td>
</tr>
<tr>
<td>Hepadnaviridae</td>
<td>Rhabdoviridae</td>
</tr>
<tr>
<td>Parvovirus</td>
<td>Filoviridae (hemorrhagic fever viruses)</td>
</tr>
<tr>
<td></td>
<td>Orthomyxoviridae (influenza)</td>
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<tr>
<td></td>
<td>Bunyaviridae (e.g., Rift Valley fever, Crimean-Congo hemorrhagic fever, Sin Nombre virus)</td>
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<tr>
<td></td>
<td>Arenaviridae (e.g., lymphocytic choriomeningitis virus)</td>
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<tr>
<td></td>
<td>Non-HIV retroviridae</td>
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<tr>
<td></td>
<td>Picornaviridae</td>
</tr>
<tr>
<td></td>
<td>Calciviridae</td>
</tr>
<tr>
<td></td>
<td>Hepatitis E</td>
</tr>
</tbody>
</table>

**Prions**
Protozoal intestinal infections
- Balantidium coli
- Blastocystis hominis
- Cryptosporidium parvum and C. hominis
- Cyclospora cayetanensis
- Cystoisospora (Isospora) belli
- Dientamoeba fragilis
- Entamoeba histolytica (amebiasis)
- Giardiasis
- Microsporidiosis

Protozoal extraintestinal infections
- Amebic meningoencephalitis
- Babesiosis
- Leishmaniasis
- Malaria
- Toxoplasmosis
- Trichomonas vaginalis
- Trypanosomiasis (general)

Nematode intestinal infections
- Anisakiasis
- Ascaris lumbricoides (ascariasis)
- Capillaria philippinensis (capillariasis)
- Enterobius vermicularis (pinworm)
- Hookworm
- Strongyloides stercoralis
- Trichuris trichiura (whipworm)

Nematode extraintestinal infections
- Angiostrongylus cantonensis
- Bayliascariasis (raccoon roundworm)
- Cutaneous larva migrans (dog and cat hookworm)
- Dracunculus medinensis (Guinea worm)
- Filariasis
- Gnathostoma spinigerum
- Toxocariasis
- Trichinella spiralis (trichinellosis)

Cestode infections
- Diphyllobothrium latum (fish tapeworm)
- Hymenolepis (dwarf tapeworm)
- Echinococcus granulosus (hydatid disease)
Echinococcus multilocularis (alveolar disease)
Taenia saginata (beef tapeworm)
Taenia solium (pork tapeworm; intestinal)

**Trematode infections (flukes)**
- Clonorchis sinensis (Chinese liver fluke)
- Fasciolopsis buski (intestinal fluke)
- Fasciola hepatica and gigantica (sheep liver fluke)
- Paragonimus westermani (lung fluke)
- Schistosomiasis (general)

**Ectoparasitic infections**
- Myiasis (human botfly or tumbu fly)
- Pediculus humanus (body, head, and pubic lice)
- Tick bites—identification and tick paralysis
- Tungiasis (Tunga penetrans)
- Bed bugs

**General principles of travel medicine**
- Pretravel preparation
- Post-travel Illness
- Immigrants, refugees, and adoptees
- Travelers with specific needs

<table>
<thead>
<tr>
<th>Fungi</th>
<th>5% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yeasts</td>
<td></td>
</tr>
<tr>
<td>Candida</td>
<td></td>
</tr>
<tr>
<td>Cryptococcus</td>
<td></td>
</tr>
<tr>
<td>Other yeasts (including Trichosporon and Saccharomyces)</td>
<td></td>
</tr>
</tbody>
</table>

**Endemic mycoses**
- Histoplasma
- Blastomyces dermatitidis
- Coccioidoides immitis (C. posadasii)
- Sporothrix schenckii
- Paracoccidioides brasiliensis
- Talaromyces (Penicillium) marneffei

**Molds**
- Aspergillus
- Hyaline molds
- Agents of zygomycosis (mucormycosis)
- Dematiaceous molds (Bipolaris, Exophila, and others)

**Superficial and subcutaneous mycoses**
- Mycetoma
- Chromoblastomycosis
Malassezia
Dermatophytes

*Pneumocystis jirovecii* pneumonia (PJP)

**Therapy**
- Pharmacokinetics
- Drug interactions
- Spectrum
- Toxicity
- Prophylaxis
- Susceptibility testing
- Drug resistance

**Diagnostic testing**
- Histopathology
- Culture
- Nonculture methods

** Syndromes**
- Mucosal
- Skin
- Pulmonary
- Central nervous system and eyes
- Cardiac
- Disseminated

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**Immunocompromised Host (Non-HIV Infection)** 5% of Exam

**Primary immunodeficiency**
- Anatomic lesions
- Lymphocyte defects
- Combined immunodeficiency syndromes (including severe combined immunodeficiency [SCID])
- Phagocytes
- Complement deficiencies
- NK cell deficiencies

**Hematologic malignancies and stem cell transplantation**
- Infections associated with chemotherapy-induced neutropenia
- Stem cell transplant
- Syndromes
- Noninfectious conditions

**Solid-organ transplantation**
- Donor-derived infections
- Surgical site infections
Hospital-acquired infection  
Opportunistic infections  
Noninfectious conditions  

Complications of immunosuppression in non-transplant population  
(disease-modifying agents, including tumor necrosis factor [TNF] blockers, corticosteroids)  
Bacteria  
Fungi  
Viruses  
Parasites and protozoa  

Infection prevention in the immunosuppressed host  
Immunizations  
Antimicrobials  
Environmental control  

Vaccinations  

<table>
<thead>
<tr>
<th>Vaccinations</th>
<th>4% of Exam</th>
</tr>
</thead>
</table>

Active immunizations (vaccines)  
Pneumococcal  
Influenza  
Tetanus, diphtheria, and acellular pertussis  
*Haemophilus influenzae*  
Hepatitis B  
Hepatitis A  
Measles, mumps, and rubella  
Polio  
Meningococcal  
Smallpox  
Rabies  
Varicella  
Herpes zoster  
Human papillomavirus (HPV)  
Anthrax  

Passive immunizations  
Varicella-zoster virus  
Rabies  
Hepatitis B  
Tetanus  
Immune globulin  
Other (including cytomegalovirus immune globulin)
**Infection Prevention and Control**

**Applied epidemiology and biostatistics**
- Outbreak investigation
- Healthcare quality improvement

**Healthcare-associated infections (HAIs) of organ systems**
- HAIs related to intravascular devices,
  - short-term and long-term (including contaminated infusions)
- HA urinary tract infections and pneumonia infections
- HA surgical site infections
- HAIs of other organ systems (including gastrointestinal tract infections, and central nervous system infections)

**Epidemiology and prevention of HAIs caused by specific pathogens**
- Bacterial infections
- Mycobacterial and fungal infections
- Viral infections

**Epidemiology and prevention of HAIs in special patient populations**
- HAIs in obstetrics
- HAIs in neoplastic diseases
- HAIs in organ transplant and hematopoietic stem cell transplant

**Epidemiology and prevention of HAIs in therapeutic procedures**
- Infection risks of endoscopy
- HAIs associated with hemodialysis and peritoneal dialysis
- HAIs related to other procedures (including cardiology and respiratory therapy)
- HAIs following transfusion of blood and blood products
- Fecal transplantation

**Prevention of HAIs related to hospital support services**
- Environmental services
- Disinfection and sterilization

**Epidemiology and prevention of HAIs in healthcare workers**
- Prevention of occupationally acquired viral hepatitis in healthcare workers
- Prevention of occupationally acquired HIV infection in healthcare workers
- Vaccination of healthcare workers
- Prevention of occupationally acquired diseases of healthcare workers spread by contact, droplet, or airborne precautions (other than TB, and including diagnostic laboratories)

**Organization and implementation of infection control programs**
- Surveillance of HAIs
- Isolation precautions
Hand antisepsis
Epidemiology and prevention of infections in residents of long-term care facilities
Infection control in countries with limited resources

| General Internal Medicine (i.e., infectious disease “mimics”), Critical Care, and Surgery |
|-----------------------------------|---------------------------------|
| **General internal medicine**     | 18% of Exam                     |
| Malignancies                      |                                 |
| Hemophagocytic lymphohistiocytosis (Hemophagocytic syndrome) | |
| Noninfectious inflammatory disorders (e.g., vasculitis, lupus, inflammatory bowel disease) | |
| Dermatologic disorders            |                                 |
| Hematologic disorders             |                                 |
| Noninfectious central nervous system disease | |
| Bites, stings, and toxins         |                                 |
| Drug fever                        |                                 |
| Ethical and legal decision making |                                 |
| **Surgical infections**           |                                 |
| Orthopedic                        |                                 |
| Neurosurgery                      |                                 |
| Ear, nose, and throat             |                                 |
| General surgery and intra-abdominal |                         |
| Thoracic and cardiothoracic       |                                 |
| Urologic                          |                                 |
| Obstetric and gynecologic         |                                 |
| Plastic and reconstructive        |                                 |
| Vascular                          |                                 |
| **Critical care medicine**        |                                 |
| Systemic inflammatory response syndrome (SIRS) and sepsis | |
| Ventilator-associated pneumonias  |                                 |
| Noninfectious pneumonias (eosinophilic and acute respiratory distress syndrome [ARDS]) | |
| Bacterial pneumonias              |                                 |
| Viral pneumonias                  |                                 |
| Hyperthermia and hypothermia      |                                 |
| Near-drowning and *Scedosporium* and *Pseudallescheria* infection | |

January 2021