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>
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<tbody>
<tr>
<td>Bacterial Diseases</td>
<td>27%</td>
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<tr>
<td>Human Immunodeficiency Virus (HIV) Infection</td>
<td>15%</td>
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<tr>
<td>Antimicrobial Therapy</td>
<td>9%</td>
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<tr>
<td>Viral Diseases</td>
<td>7%</td>
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<tr>
<td>Travel and Tropical Medicine</td>
<td>5%</td>
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<tr>
<td>Fungi</td>
<td>5%</td>
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<tr>
<td>Immunocompromised Host (Non-HIV Infection)</td>
<td>5%</td>
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<tr>
<td>Vaccinations</td>
<td>4%</td>
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<tr>
<td>Infection Prevention and Control</td>
<td>5%</td>
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<tr>
<td>General Internal Medicine, Critical Care, and Surgery</td>
<td>18%</td>
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<td><strong>100%</strong></td>
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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

Gram-positive cocci
- *Staphylococcus aureus*
- *Streptococcus*
- *Enterococcus*

Gram-positive rods
- *Listeria*
- *Corynebacterium*
- *Bacillus*
- *Erysipelothrix*

Gram-negative cocci and coccobacilli
- *Neisseria*
- *Haemophilus*

Gram-negative rods
- *Enterobacteriaceae*
- *Pseudomonas*
- *Stenotrophomonas*
- *Burkholderia*
- *Acinetobacter*
- *Aeromonas*
- *Salmonella*
- *Shigella*
- *Campylobacter*
- *Vibrio*
- *Pasteurella*
- *Yersinia*
- *Legionella*
- *Capnocytophaga*
- *Bartonella*
- *Brucella*
- *Bordetella*
- *Streptobacillus*
- *Francisella*
- *Helicobacter*

Anaerobes
- Gram-positive cocci
- Gram-positive rods
- Gram-negative rods

Actinomycetes
- *Actinomyces*
- *Nocardia*
Spirochetes
  *Treponema*
  *Borrelia*
  *Leptospira*

*Mycoplasma*
  *M. pneumoniae*
  *M. genitalium*

*Tropheryma 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. leprae*
  Nontuberculous mycobacteria

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

## Antimicrobial Therapy 9% of Exam

**Antibacterials**
- Aminoglycosides
- Antifolates
- Carbapenems
- Cephalosporins
- Fluoroquinolones
- Glycopeptides, glycolipopeptides, and lipopeptides
- Lincosamides
- Macrolides
- Monobactams
- Nitroimidazoles
- Oxazolidinones
- Penicillins
- Polymyxins
- Rifamycins
- Streptogramins
- Tetracyclines
- Non-sulfonamide (sulfa drug), non-trimethoprim urinary tract agents
- Topical antibacterials
- Other routes of administration

**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
Miscellaneous and topical agents

**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

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<th>Viral Diseases</th>
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**DNA viruses**
- Herpesviruses
- Adenovirus
- Papillomavirus
- Polyomavirus
- Poxviruses
- Hepadnaviridae
- Parovirus

**RNA viruses**
- Reoviridae (e.g., rotavirus)
- Togaviridae (e.g., chikungunya)
- Flaviridae
- Coronaviridae
- Paramyxoviridae
- Rhabdoviridae
- Filoviridae (hemorrhagic fever viruses)
- Orthomyxoviridae (influenza)
- Bunyaviridae (e.g., Rift Valley fever, Crimean-Congo hemorrhagic fever, Sin Nombre virus)
- Arenaviridae (e.g., lymphocytic choriomeningitis virus)
- Non-HIV retroviridae
- Picornaviridae
- Calciviridae
- Hepatitis E

**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* (capillariosis)
- *Enterobius vermicularis* (pinworm)
- Hookworm
- *Strongyloides stercoralis*
- *Trichuris trichiura* (whipworm)

Nematode extraintestinal infections
- *Angiostrongylus cantonensis*
- Baylasscariasis (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

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Yeasts
Candida
Cryptococcus
Other yeasts (including Trichosporon and Saccharomyces)

Endemic mycoses
Histoplasma
Blastomyces dermatitidis
Coccidioides 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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<th>Immunocompromised Host (Non-HIV Infection)</th>
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**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

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<th>Vaccinations</th>
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**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 18% of Exam

General internal medicine
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

July 2019