Purpose of the exam

The exam is designed to evaluate the knowledge, diagnostic reasoning, and clinical judgment skills expected of the certified adult congenital heart disease (ACHD) 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 an adult congenital heart 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 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>Embryology and Anatomy</td>
<td>4%</td>
</tr>
<tr>
<td>Clinical Evaluation</td>
<td>10%</td>
</tr>
<tr>
<td>Noninvasive Diagnostic Testing Indications and Interpretation</td>
<td>20%</td>
</tr>
<tr>
<td>Diagnostic and Interventional Cardiac Catheterization</td>
<td>7%</td>
</tr>
<tr>
<td>Arrhythmias</td>
<td>15%</td>
</tr>
<tr>
<td>Congenital Cardiac Surgery</td>
<td>12%</td>
</tr>
<tr>
<td>Heart Failure and Pulmonary Hypertension</td>
<td>10%</td>
</tr>
<tr>
<td>Reproductive Health</td>
<td>5%</td>
</tr>
<tr>
<td>Acquired Cardiovascular Disease and Common Adult Medical Problems</td>
<td>5%</td>
</tr>
<tr>
<td>Extracardiac Manifestations of Congenital Heart Disease</td>
<td>7%</td>
</tr>
<tr>
<td>Life and Health Management</td>
<td>5%</td>
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<tr>
<td></td>
<td>100%</td>
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</tbody>
</table>
**Exam format**

The exam is composed of multiple-choice questions with a single best answer, predominantly describing clinical 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.

A tutorial including examples of ABIM exam question format can be found at [http://www.abim.org/certification/exam-information/adult-congenital-heart-disease/exam-tutorial.aspx](http://www.abim.org/certification/exam-information/adult-congenital-heart-disease/exam-tutorial.aspx).

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. Please note: actual exam content may vary.

<table>
<thead>
<tr>
<th>Embryology and Anatomy</th>
<th>4% of Exam</th>
</tr>
</thead>
</table>

**Normal and abnormal development**
- Situs abnormalities
- Venous connections
- Atrioventricular connections
- Septal defects
- Looping
- Conotruncal defects
- Conduction systems
- Coronaries
- Other normal and abnormal development

**Genetic syndromes and associations**
- Down
- DiGeorge and VACTERL
- Williams
- Turner
- Noonan
- Holt-Oram
- Alagille
Other genetic syndromes and associations

<table>
<thead>
<tr>
<th>Clinical Evaluation</th>
<th>10% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>History</strong></td>
<td>2.5%</td>
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<tr>
<td>Symptoms</td>
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<tr>
<td>Surgical</td>
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<td>Interventional</td>
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<td>Reproductive</td>
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<tr>
<td>Social</td>
<td></td>
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<tr>
<td>Family</td>
<td></td>
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<tr>
<td>Other history</td>
<td></td>
</tr>
<tr>
<td><strong>Physical examination</strong></td>
<td>7.5%</td>
</tr>
<tr>
<td>Septal defects</td>
<td></td>
</tr>
<tr>
<td>Patent ductus arteriosus</td>
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<tr>
<td>Coarctation of the aorta</td>
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<tr>
<td>Left ventricular outflow tract obstruction</td>
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<tr>
<td>Pulmonary stenosis</td>
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<tr>
<td>Tetralogy of Fallot</td>
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<tr>
<td>Dextro-transposition of the great arteries</td>
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<tr>
<td>Congenitally corrected transposition of the great arteries</td>
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<tr>
<td>Single ventricle/Fontan</td>
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<tr>
<td>Truncus arteriosus</td>
<td></td>
</tr>
<tr>
<td>Pulmonary hypertension/Eisenmenger syndrome</td>
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<tr>
<td>Ebstein anomaly</td>
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<tr>
<td>Other physical examination</td>
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</table>

<table>
<thead>
<tr>
<th>Noninvasive Diagnostic Testing – Indications and Interpretation</th>
<th>20% of Exam</th>
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</thead>
<tbody>
<tr>
<td><strong>Electrocardiography</strong></td>
<td>2%</td>
</tr>
<tr>
<td>Wolff-Parkinson-White syndrome</td>
<td></td>
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<tr>
<td>Ebstein anomaly</td>
<td></td>
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<tr>
<td>Congenitally corrected transposition of the great arteries</td>
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<tr>
<td>Primum atrial septal defect</td>
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<tr>
<td>Systemic right ventricle</td>
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<tr>
<td>Tetralogy of Fallot</td>
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<tr>
<td>Other electrocardiography</td>
<td></td>
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<tr>
<td><strong>Chest radiograph</strong></td>
<td>&lt;2%</td>
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<tr>
<td>New diagnosis</td>
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<tr>
<td>Post interventional catheterization/electrophysiology</td>
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<tr>
<td>Post surgical</td>
<td></td>
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<tr>
<td>Other chest radiograph</td>
<td></td>
</tr>
</tbody>
</table>
Transthoracic and transesophageal echocardiography 10%
  Indications
  Septal defects
  Patent ductus arteriosus
  Coarctation of the aorta
  Left ventricular outflow tract obstruction
  Pulmonary stenosis
  Tetralogy of Fallot
  Dextro-transposition of the great arteries
  Congenitally corrected transposition of the great arteries
  Single ventricle/Fontan
  Truncus arteriosus
  Pulmonary hypertension/Eisenmenger syndrome
  Ebstein anomaly
  Coronary anomalies – origin and course
  Other echocardiography

Magnetic resonance imaging 4%
  Indications and contraindications
  Sinus venosus atrial septal defect
  Anatomy of pulmonary artery and vein
  Coarctation of the aorta
  Aortopathy
  Tetralogy of Fallot
  Dextro-transposition of the great arteries
  Congenitally corrected transposition of the great arteries
  Single ventricle/Fontan
  Truncus arteriosus
  Coronary anomalies – origin and course
  Other magnetic resonance imaging

Computed tomography <2%
  Indications and contraindications
  Coronary arterial and venous anatomy
  Stents
  Other computed tomography

Stress testing <2%
  Electrocardiography
  Cardiopulmonary exercise test
  Other stress testing

Nuclear lung perfusion <2%
### Diagnostic and Interventional Cardiac Catheterization  

#### Diagnostic indications
- Fontan
- Shunt lesions
- Pulmonary hypertension
- Coronary anomalies and coronary artery disease
- Inconclusive noninvasive imaging
- Other diagnostic indications

#### Procedural considerations
- Safety
- Access
- Other procedural considerations

#### Hemodynamic
- Vasoreactivity testing
- Pressure tracing
- Calculations
- Other hemodynamic

#### Angiography
- Coronary anomalies and acquired diseases
- Coarctation of the aorta
- Ventriculography
- Collaterals
- Single ventricle/Fontan
- Dextro-transposition of the great arteries
- Other angiography

#### Interventional
- Indications
- Device closure of shunts
- Valvuloplasty/Angioplasty
- Stents
- Coils
- Valve replacement
- Other interventional

### Arrhythmias

#### Naturally acquired
- Atrioventricular block
- Wolff-Parkinson-White syndrome
- Other naturally acquired
Postoperative 5.5%

- Atrioventricular node block
- Sinoatrial node
- Atrial flutter/intra-atrial reentrant tachycardia
- Ventricular tachycardia, ventricular flutter, sudden cardiac death
- Atrial fibrillation
- Junctional ectopic tachycardia (JET)
- Other postoperative

Medical management <2%

- Antiarrhythmic medication
- Anticoagulation
- Other medical management

Electrophysiology and ablation 3%

- Indications
- Outcomes
- Other electrophysiology and ablation

Arrhythmia surgery <2%

- Indications
- Outcomes
- Other arrhythmia surgery

Devices 3%

- Indications
- Outcomes
- Implantable cardioverter-defibrillator
- Pacer
- Cardiac resynchronization therapy
- Other devices

Congenital Cardiac Surgery 12% of Exam

Indications and risks 3%

- Septal defects
- Coarctation of the aorta
- Left ventricular outflow tract obstruction
- Tetralogy of Fallot
- Dextro-transposition of the great arteries
- Congenitally corrected transposition of the great arteries
- Single ventricle/Fontan
- Truncus arteriosus
- Ebstein anomaly
- Coronary anomalies – origin and course
Right ventricular outflow tract
Valve replacement
Other indications and risks

Types

Coarctation of the aorta
Systemic to pulmonary artery shunts
Blalock-Hanlon
Atrial switches
Arterial switches
Rastelli
Ross
Glenn/Fontan
Warden
Conduits
Septal defect repair
Tetralogy of Fallot repair
Valve replacement
Truncus arteriosus repair
Pulmonary artery banding
Other types

Perioperative assessment and management

Access
Coronary angiography
Assessment of comorbidities
Other peroperative assessment and management

Postoperative complications, residua, and sequelae

Acute postoperative complications
Cardiac
Noncardiac
Other complications of ACHD surgery
Long-term residua and sequelae
Left-to-right shunts
Coarctation of the aorta
Left ventricular outflow tract obstruction
Right ventricular outflow tract obstruction
Tetralogy of Fallot
Dextro-transposition of the great arteries
Congenitally corrected transposition of the great arteries
Single ventricle/Fontan
Truncus arteriosus
Ebstein anomaly
Coronary anomalies
Other long-term residua and sequelae
Other complications, residua, and sequelae

<table>
<thead>
<tr>
<th>Heart Failure and Pulmonary Hypertension</th>
<th>10% of Exam</th>
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</thead>
<tbody>
<tr>
<td>Evaluation of heart failure</td>
<td>4%</td>
</tr>
<tr>
<td>Etiology</td>
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<tr>
<td>Clinical examination</td>
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<tr>
<td>Biomarkers</td>
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<tr>
<td>Imaging</td>
<td></td>
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<tr>
<td>Functional testing</td>
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<td>Catheterization</td>
<td></td>
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<tr>
<td>Other heart failure evaluation</td>
<td></td>
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<tr>
<td>Medical management of heart failure</td>
<td>&lt;2%</td>
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<tr>
<td>Heart failure medications</td>
<td></td>
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<tr>
<td>Arrhythmia treatment</td>
<td></td>
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<tr>
<td>Other heart failure medical management</td>
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<tr>
<td>Intervention for heart failure</td>
<td>&lt;2%</td>
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<tr>
<td>Surgery</td>
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<tr>
<td>Intervventional catheterization</td>
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<td>Transplant</td>
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<td>Mechanical circulatory support</td>
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<tr>
<td>Other heart failure intervention</td>
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<tr>
<td>Evaluation of pulmonary hypertension</td>
<td>2%</td>
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<tr>
<td>Etiology</td>
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<td>Clinical examination</td>
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<td>Functional testing</td>
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<td>Cardiac catheterization</td>
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<td>Other pulmonary hypertension evaluation</td>
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<tr>
<td>Pulmonary arterial hypertension – specific therapies</td>
<td>&lt;2%</td>
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</tbody>
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<thead>
<tr>
<th>Reproductive Health</th>
<th>5% of Exam</th>
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</thead>
<tbody>
<tr>
<td>Pregnancy</td>
<td>3.5%</td>
</tr>
<tr>
<td>Risk assessment and preconception counseling</td>
<td></td>
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<tr>
<td>Management during pregnancy</td>
<td></td>
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<tr>
<td>Peripartum care</td>
<td></td>
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<tr>
<td>Other pregnancy</td>
<td></td>
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<tr>
<td>Genetic counseling</td>
<td>&lt;2%</td>
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<tr>
<td>Contraception</td>
<td>&lt;2%</td>
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<tr>
<td>Types and indications</td>
<td></td>
</tr>
<tr>
<td>Risks</td>
<td></td>
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<tr>
<td>Other contraception</td>
<td></td>
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</tbody>
</table>
Sexual dysfunction <2%

Acquired Cardiovascular Disease and Common Adult Medical Problems 5% of Exam

Acute and long-term ischemic heart disease <2%
  Risk factors
  Recognition
  Evaluation
  Management
  Other ischemic heart disease

Heart failure <2%
  Recognition and evaluation
  Medical therapy
  Role of device therapy
  Other heart failure

Noncardiac surgery <2%
  Risk assessment
  Perioperative management
  Other noncardiac surgery

Adult medical issues <2%
  Syndromic patients
  Sleep apnea
  Hypertension
  Obesity
  Lung disease
  Renal function
  Neurologic
  Liver disease
  Other adult medical issues

Endocarditis prophylaxis and management <2%

Extracardiac Manifestations of Congenital Heart Disease 7% of Exam

Liver <2%
Protein-losing enteropathy <2%
Venous insufficiency <2%
Thromboembolic <2%
Collaterals <2%
Cyanotic congenital heart disease <2%
  Hematologic
  Gout
  Embolism
  Brain abscess
Other cyanotic congenital heart disease

| Infection risks | <2%  |
| Vascular rings and slings | <2%  |
| Lung | <2%  |
| Kidney | <2%  |

### Life and Health Management  5% of Exam

**Exercise and athletic participation**  <2%
- Promotion
- Limitations
- Other exercise and athletic participation

**Recognition of psychosocial/neurocognitive/mood disorders**  <2%

**Access and delivery of care**  <2%

**Transition education**  <2%
- Best practices
- Employability and insurability
- Other transition education

**End-of-life/Advance directives**  <2%

January, 2017