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>
</tr>
<tr>
<td></td>
<td>100%</td>
</tr>
</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>
<tbody>
<tr>
<td><strong>Normal and abnormal development</strong></td>
<td>2%</td>
</tr>
<tr>
<td>Situs abnormalities</td>
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<tr>
<td>Venous connections</td>
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<tr>
<td>Atrioventricular connections</td>
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<tr>
<td>Septal defects</td>
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<tr>
<td>Looping</td>
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<tr>
<td>Conotruncal defects</td>
<td></td>
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<tr>
<td>Conduction systems</td>
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<tr>
<td>Coronaries</td>
<td></td>
</tr>
<tr>
<td>Other normal and abnormal development</td>
<td></td>
</tr>
<tr>
<td><strong>Genetic syndromes and associations</strong></td>
<td>2%</td>
</tr>
<tr>
<td>Down</td>
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</tr>
<tr>
<td>DiGeorge and VACTERL</td>
<td></td>
</tr>
<tr>
<td>Williams</td>
<td></td>
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<tr>
<td>Turner</td>
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<tr>
<td>Noonan</td>
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<tr>
<td>Holt-Oram</td>
<td></td>
</tr>
<tr>
<td>Alagille</td>
<td></td>
</tr>
<tr>
<td>Other genetic syndromes and associations</td>
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</tr>
</tbody>
</table>
Clinical Evaluation

<table>
<thead>
<tr>
<th>History</th>
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<tbody>
<tr>
<td>Symptoms</td>
<td></td>
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<tr>
<td>Surgical</td>
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<tr>
<td>Interventional</td>
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<tr>
<td>Reproductive</td>
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<tr>
<td>Social</td>
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<tr>
<td>Family</td>
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<td>Other history</td>
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</table>

<table>
<thead>
<tr>
<th>Physical examination</th>
<th>7.5%</th>
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</thead>
<tbody>
<tr>
<td>Septal defects</td>
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</tr>
<tr>
<td>Patent ductus arteriosus</td>
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</tr>
<tr>
<td>Coarctation of the aorta</td>
<td></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>
<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>
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<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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</tbody>
</table>

Noninvasive Diagnostic Testing – Indications and Interpretation

<table>
<thead>
<tr>
<th>Electrocardiography</th>
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</thead>
<tbody>
<tr>
<td>Wolff-Parkinson-White syndrome</td>
<td></td>
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<tr>
<td>Ebstein anomaly</td>
<td></td>
</tr>
<tr>
<td>Congenitally corrected transposition of the great arteries</td>
<td></td>
</tr>
<tr>
<td>Primum atrial septal defect</td>
<td></td>
</tr>
<tr>
<td>Systemic right ventricle</td>
<td></td>
</tr>
<tr>
<td>Tetralogy of Fallot</td>
<td></td>
</tr>
<tr>
<td>Other electrocardiography</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chest radiography</th>
<th>&lt;2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>New diagnosis</td>
<td></td>
</tr>
<tr>
<td>Post interventional catheterization/electrophysiology</td>
<td></td>
</tr>
<tr>
<td>Post surgical</td>
<td></td>
</tr>
<tr>
<td>Other chest radiography</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 7% of Exam

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

### Procedural considerations <2%
- Safety
- Access
- Other procedural considerations

### Hemodynamic <2%
- Vasoreactivity testing
- Pressure tracing
- Calculations
- Other hemodynamic

### Angiography <2%
- Coronary anomalies and acquired diseases
- Coarctation of the aorta
- Ventriculography
- Collaterals
- Single ventricle/Fontan
- Dextro-transposition of the great arteries
- Other angiography

### Interventional 3.5%
- Indications
- Device closure of shunts
- Valvuloplasty/Angioplasty
- Stents
- Coils
- Valve replacement
- Other interventional

## Arrhythmias 15% of Exam

### Naturally acquired <2%
- Atrioventricular block
- Wolff-Parkinson-White syndrome
- Other naturally acquired
**Postoperative**
- 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**
- Antiarrhythmic medication
- Anticoagulation
- Other medical management

**Electrophysiology and ablation**
- Indications
- Outcomes
- Other electrophysiology and ablation

**Arrhythmia surgery**
- Indications
- Outcomes
- Other arrhythmia surgery

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

---

### Congenital Cardiac Surgery

**12% of Exam**

**Indications and risks**
- 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 perioperative 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
Heart Failure and Pulmonary Hypertension  10% of Exam

Evaluation of heart failure  4%
  Etiology
  Clinical examination
  Biomarkers
  Imaging
  Functional testing
  Catheterization
  Other heart failure evaluation

Medical management of heart failure  <2%
  Heart failure medications
  Arrhythmia treatment
  Other heart failure medical management

Intervention for heart failure  <2%
  Surgery
  Intervventional catheterization
  Transplant
  Mechanical circulatory support
  Other heart failure intervention

Evaluation of pulmonary hypertension  2%
  Etiology
  Clinical examination
  Biomarkers
  Imaging
  Functional testing
  Cardiac catheterization
  Other pulmonary hypertension evaluation

Pulmonary arterial hypertension – specific therapies  <2%

Reproductive Health  5% of Exam

Pregnancy  3.5%
  Risk assessment and preconception counseling
  Management during pregnancy
  Peripartum care
  Other pregnancy

Genetic counseling  <2%

Contraception  <2%
  Types and indications
  Risks
  Other contraception

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%  

<table>
<thead>
<tr>
<th>Life and Health Management</th>
<th>5% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise and athletic participation</td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Promotion</td>
<td></td>
</tr>
<tr>
<td>Limitations</td>
<td></td>
</tr>
<tr>
<td>Other exercise and athletic participation</td>
<td></td>
</tr>
<tr>
<td>Recognition of psychosocial/neurocognitive/mood disorders</td>
<td>&lt;2%</td>
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<tr>
<td>Access and delivery of care</td>
<td>&lt;2%</td>
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<tr>
<td>Transition education</td>
<td>&lt;2%</td>
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<tr>
<td>Best practices</td>
<td></td>
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<tr>
<td>Employability and insurability</td>
<td></td>
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<tr>
<td>Other transition education</td>
<td></td>
</tr>
<tr>
<td>End-of-life/Advance directives</td>
<td>&lt;2%</td>
</tr>
</tbody>
</table>

January 2019