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Examination Overview

RCCS

Registered Congenital Cardiac Sonographer



Registered Congenital Cardiac Sonographer (RCCS)

This Examination Overview is meant to assist you as a prospective candidate of the Registered Congenital Cardiac Sonographer (RCCS) credentialing program. It provides an overview of the Qualification Requirements and Examination Content. For more details on CCI policies, the testing process, and procedures to submit an application, please visit www.cci-online.org to view or download the Applicant Handbook. **Examination fee is \$365 USD and all exam fees include a \$100 USD non-refundable filing fee.**

Qualification Requirements

All applicants must meet the following criteria: 1) Have a high school diploma or general education diploma at the time of application. 2) Fulfill one (1) of the qualifications of the exam for which you are applying. See qualifications listed in the tables below. 3) Provide typed documentation to support the qualification prerequisite under which you are applying. Required documentation for each qualification prerequisite is listed below. CCI reserves the right to request additional information.

Qualification Prerequisite (All applicants must fulfill one of the following)	Supporting Documentation
<p>RCCS1 Two years of full-time or full-time equivalent work experience in cardiac ultrasound at the time of application. The applicant must have performed a minimum of 600 cardiac ultrasound studies at the time of application. (It is anticipated, but NOT required, that the successful candidate will have performed a minimum of 150 adult congenital/pediatric studies per year in the two years prior to submission of the application.) In the verification letter, the medical director(s) must confirm the number of studies performed during the applicant's employment. Effective June 30, 2023, the RCCS1 qualification prerequisite will be sunset. First-time RCCS applicants applying on or after July 1, 2023 must select from the qualification prerequisites listed below.</p>	<p>RCCS1 Employment Verification Letter (must confirm the number of studies performed during the applicant's employment)</p>
<p>RCCS235 A graduate of a diploma, associate, or baccalaureate academic program in health science (including, but not limited to, cardiovascular technology, ultrasound, radiologic technology, respiratory therapy, or nursing) AND One year of full-time or full-time equivalent work experience in cardiac ultrasound at the time of application. AND Performance of a minimum of 600 cardiac ultrasound studies* in the applicant's career, which is defined as work experience and/or clinical experience gained during a formal educational program. (It is anticipated, but NOT required that the successful candidate will have performed a minimum of 150 adult congenital/pediatric studies per year in the two years prior to submission of the application.) In the verification letter(s) the medical director(s) and/or program director(s) must confirm the number of studies performed during the applicant's employment and/or during the academic program.</p>	<p>RCCS235 Completion certificate and/or educational transcripts AND Employment Verification Letter AND/OR Clinical Experience Letter (only required for applicants submitting verification of the number of studies completed during a formal educational program)</p>
<p>RCCS4 A graduate of a programmatically accredited program** in adult congenital or pediatric cardiac ultrasound.</p>	<p>RCCS4 Completion certificate and/or educational transcripts AND Student Verification Letter Students applying to take examination prior to graduation will be required to submit this documentation.</p>
<p>RCCS5 A graduate of a NON-programmatically accredited program in adult congenital or pediatric cardiac ultrasound (echocardiography) which has a minimum of one year of specialty training and includes a minimum of 800 clinical hours in the specialty in which the examination is being requested. IMPORTANT: If an individual's clinical hours were completed after graduation or if the hours are not a requirement for their educational program, then those hours WOULD NOT count toward the 800-hour minimum under qualification RCCS5. All clinical hours must be earned in a setting in which patients are being tested or medically treated.</p>	<p>RCCS5 Completion certificate and/or educational transcripts AND Student Verification Letter AND Clinical Experience Letter Students applying to take examination prior to graduation will be required to submit this documentation.</p>
<p>RCCS6 Active ultrasound credential holders with six (6) months of full-time or full-time equivalent work experience in adult congenital or pediatric cardiac ultrasound. The applicant must have participated in a minimum of 100 adult congenital or pediatric ultrasound studies* at the time of application. In the verification letter, the medical director(s) must confirm the number of studies performed during the applicant's employment.</p>	<p>RCCS6 Copy of wallet card showing date earned and active through date of ultrasound registry credential AND Employment Verification Letter (must confirm the number of studies performed during the applicant's employment). AND/OR Clinical Experience Letter (only required for applicants submitting verification of the number of studies completed during a formal educational program)</p>

* If an individual's studies were conducted during a formal educational program, then those studies completed WOULD count toward the minimum cardiac ultrasound studies under qualifications RCCS235 and RCCS6.

** An accredited program is accredited by an agency recognized by the Council for Higher Education Accreditation (CHEA), United States Department of Education (USDOE), or Canadian Medical Association (CMA) that specifically conducts programmatic accreditation for cardiovascular technology, diagnostic cardiac sonography, or vascular technology.

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Examination Matrix

This examination matrix is provided to illustrate the general distribution of questions and the relative weight or emphasis given to a skill or content area on the examination.

Content Category	Approximate % of Exam
A. Providing Patient Care	7%
B. Acquiring Cardiac Images and Associated Lesions	48%
C. Characterizing Cardiac Abnormalities	37%
D. Processing and Communicating Preliminary Reports	8%
TOTAL	100%

Knowledge List

The list below describes general areas of knowledge that are needed in order to perform the tasks identified. This knowledge will apply across multiple tasks.

Abbreviations and acronyms	BLS	JCAHO requirements
Adjunct modalities	Cardiac interventions, complications, and sequelae	Medical ethics
<ul style="list-style-type: none"> • 3-D • Contrast • ICE • Stress • TEE 	Cardiac rhythms	Medical terminology
ASE guidelines and standards	Cardiovascular anatomy and physiology	Normal, abnormal, and critical clinical values
Basic and hemodynamic calculations (e.g. volumes, gradient, ejection fraction)	Cardiovascular pathophysiology	OSHA
Basic pharmacology	Congenital heart disease	Patient assessment
	Contraindications	Pediatric acquired heart disease
	Embryology	QA procedures
	Ergonomics	Syndromes with associated cardiac lesions
	General anatomy and physiology	Ultrasound physics and instrumentation
	HIPAA	

Task List

The task list below describes the activities which a Registered Congenital Cardiac Sonographer is expected to perform on the job. All examination questions are linked to these tasks.

Duties and Tasks	Approx. % of Exam	Duties and Tasks	Approx. % of Exam
A Providing Patient Care	7%	C Characterizing Cardiac Abnormalities	37%
1 Triage Incoming Orders		1 Perform Disease Specific Protocol	
2 Review Indications and Appropriateness of Exam		2 Identify Commonly Associated Lesions	
3 Review Patient History		3 Identify Less Commonly Associated Lesions	
4 Verify Patient Identity		4 Assist with TEE	
5 Perform Pre-Procedural Activities		5 Perform Stress Echo	
6 Ensure Continuous Quality Improvement		6 Perform Contrast-Enhanced Echo	
B Acquiring Cardiac Images and Associated Lesions	48%	7 Perform Agitated Saline Echo	
1 Prepare for Test		8 Perform 3D Echo	
2 Optimize Images		D Processing and Communicating Preliminary Reports	8%
3 Acquire Left Parasternal Images		1 Perform Calculations and Post-Processing Analysis	
4 Acquire Apical Images		2 List Findings	
5 Acquire Subcostal Images		3 Communicate Critical Results	
6 Acquire Suprasternal Images		4 Perform Post Examination Communication	
7 Acquire Right Parasternal Images		TOTAL	100%
8 Adapt Patient Examination			

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Sample Questions

- 1. Persistent patency of the vessel in the fetus that connects the left pulmonary artery to the descending thoracic aorta is**
 - a. Coarctation
 - b. Truncus arteriosus
 - c. Patent ductus arteriosus
 - d. Peripheral pulmonic stenosis
- 2. Displacement of the tricuspid valve leaflets from the annulus into the RV cavity is**
 - a. Tricuspid atresia
 - b. Tetralogy of Fallot
 - c. Ebstein's anomaly
 - d. Eisenmenger's syndrome
- 3. Cortriatriatum may result from abnormal formation of the pulmonary vein into the ____.**
 - a. Azygous vein
 - b. Left atrium
 - c. Coronary sinus
 - d. Superior vena cava
- 4. The Jatene procedure is indicated in what type of lesion?**
 - a. Coarctation
 - b. Truncus arteriosus
 - c. Tetralogy of Fallot
 - d. D-Transposition of Great Vessels
- 5. Indomethacin may be indicated in the treatment of**
 - a. Atrial septal defect
 - b. Ventricular septal defect
 - c. Patent ductus arteriosus
 - d. Anomalous coronary artery

Answers

1. c 2. c 3. b 4. d 5. c

RCCS References

The textbooks listed below are intended as recommended resources when preparing for examination. You may have previous or later editions of these or other references available that also present acceptable coverage of the subject matter. Any general text in cardiovascular techniques and evaluation, and cardiac patient care and management may be used. It is not necessary to use all of the texts identified. They are provided as suggestions only. CCI does not endorse or recommend any third-party review course or material.

1. Anderson, Bonita. *A Sonographer's Guide to Assessment of Heart Disease*. Echotext Pty Ltd, Australia.
2. Armstrong, William F. and Ryan, Thomas. *Feigenbaum's Echocardiography*. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.
3. Kremkau, Frederick W. *Sonography Principles and Instruments*. St. Louis, Mo.: Elsevier/Saunders.
4. Cane, Garvan C., Oh, Jae K., Seward, J. B., and Tajik, A. Jamil. *The Echo Manual*. Philadelphia: Wolters Kluwer.
5. Otto, Catherine M. *Textbook of Clinical Echocardiography*. Philadelphia, PA: Saunders/Elsevier.

Online Self-Assessment Practice Examinations are available for purchase for self-evaluation purposes. It is important to note that the results of the self-assessment exam do not guarantee or indicate individual success on the CCI exam, nor should the self-assessment serve as the only means for preparing for the CCI examination. **To order the self-assessment examinations online visit www.cci-online.org.**

CCI Applicant Handbook is required reading prior to applying for a CCI exam. Included is important information regarding the application policies, CCI procedures, and the testing process. **Download at www.cci-online.org/applicanthandbook.**