



<https://rheumatology.org/rhmsus-certification>

Musculoskeletal Ultrasound
Certification in Rheumatology—

RhMSUS™ Candidate Handbook



AMERICAN COLLEGE
of RHEUMATOLOGY
Empowering Rheumatology Professionals

The Musculoskeletal Ultrasound Certification in Rheumatology program is governed by the RhMSUS™ Oversight Committee. The Oversight Committee reserves the right to expand or revise the testing content and eligibility criteria as new information or procedures arise over time and become incorporated into the scope of musculoskeletal ultrasound in rheumatology practice. Candidates for RhMSUS™ will be notified in advance of any changes.

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Introduction

The American College of Rheumatology (ACR) is an international professional medical society that represents more than 9,000 rheumatologists and rheumatology health professionals around the world. Its mission is to empower rheumatology professionals to excel in their specialty.

Over the past few years musculoskeletal ultrasound (MSUS) has been adopted more widely in the United States by rheumatologists and other health professionals who treat rheumatology patients. Studies have shown many potential benefits for adopting MSUS including faster and more accurate diagnosis, optimized treatment, and improved needle placement accuracy. ACR convened musculoskeletal ultrasound experts to develop the [Musculoskeletal Ultrasound Certification in Rheumatology™-RhMSUS™](#) program. The foundation of the examination is the practice/job analysis that identified the primary domains, specific task statements, and related knowledge and skills required for competent performance as a certified musculoskeletal ultrasound professional. The domains, tasks, and knowledge and skill statements that make up the RhMSUS™ Examination Blueprint can be found in [Appendix F](#).

RhMSUS™ Credential and Its Importance

RhMSUS™ is a voluntary program in which physicians, physician assistants, and nurse practitioners who perform ultrasound as part of their practice in rheumatology will be able to demonstrate competence to patients, peers, and payors/insurers. Upon successful achievement of the certification, individuals will be awarded the Musculoskeletal Ultrasound Certification in Rheumatology™ and can use the RhMSUS™ designation after their names.

RhMSUS™ certification allows individuals to:

- Demonstrate competency in MSUS to patients, peers, and payors
- Promote quality of care and patient safety
- Develop professional skills relevant in the workplace

ACR has partnered with [Meazure Learning](#) a leading certification and licensure firm, to develop and administer the RhMSUS™ examination.

Please use this candidate handbook to understand our processes of application and registration. ACR recognizes the responsibility taken in participating in this certification program, and it is our aim to provide a smooth and positive certification process. If you have questions about the processes described here, please contact:

American College of Rheumatology
Certification

or

Phone: (404) 633-3777

Email: education@rheumatology.org

Hours: Monday-Friday 8:00 am - 4:00 pm EST (excluding holidays)

Meazure Learning

Candidate Support

Phone: (919) 572-6880

Email: candidatesupport@meazurelearning.com

Hours: Monday-Friday 8:30 am – 5:30 pm EST (excluding holidays)

Steps to RhMSUS™ Certification

STEP 1: VIEW ELIGIBILITY REQUIREMENTS AND SELECT PATHWAY

There are four (4) pathways for eligibility to sit for the RhMSUS™ certification examination. Each pathway contains specific requirements for career status, medical license possession, and musculoskeletal ultrasound scan experience/education.

To review the full eligibility criteria for each pathway, see the designated appendix for more information.

Pathway 1: U.S. trained rheumatologist ([See Appendix A](#))

Pathway 2: Non-U.S. trained rheumatologist ([See Appendix B](#))

Pathway 3: Rheumatology fellow-in-training ([See Appendix C](#))

Pathway 4: Physician assistant or nurse practitioner ([See Appendix D](#))

Membership in the American College of Rheumatology (ACR) or Association of Rheumatology Professionals (ARP) is not required.

STEP 2: PREPARE CME AND MSUS SCAN DOCUMENTATION

CME Requirements

Each pathway has requirements for a minimum amount of musculoskeletal ultrasound CME Credits (*AMA PRA Category 1 Credit™*) to be completed prior to application submission. To review the full requirements for each pathway, see the designated appendix for more information.

Pathway 1: U.S. trained rheumatologist ([See Appendix A](#))

Pathway 2: Non-U.S. trained rheumatologist ([See Appendix B](#))

Pathway 3: Rheumatology fellow-in-training ([See Appendix C](#))

Pathway 4: Physician assistant or nurse practitioner ([See Appendix D](#))

A percentage of candidate applications will be audited to ensure compliance with the eligibility criteria. Applications for audit will be selected randomly after the close of the testing window. In case of application audit, copy/copies of the earned CME certificate(s) must be submitted.

For more information see the RhMSUS™ Continuing Medical Education (CME) Activity Checklist ([See Appendix E](#)).

Musculoskeletal Ultrasound Scan Requirements

Each pathway has requirements for a minimum amount musculoskeletal ultrasound scans to be completed prior to application submission. To review the full requirements for each pathway, see the designated appendix for more information.

- For each unique patient/subject/model no more than one scan, per day can be logged ([See Appendix I](#)).
- Ultrasound scans can be limited or complete, diagnostic or therapeutic.
 - Examples:
 - CPT 76881: Ultrasound, complete joint (i.e., joint space and peri-articular soft tissue structures) real-time with image documentation
 - CPT 76882: Ultrasound, limited, joint or other nonvascular extremity structure(s) (e.g., joint space, peri-articular tendon[s], muscle[s], nerves[s], etc.) real-time with image documentation
- Candidates do **NOT** need to save and submit ultrasound scan images. The RhMSUS™ program does not review images.
- In case of application audit, a log (without patient identifying information in conformity with the Health Insurance Portability and Accountability Act (HIPAA)), must be submitted for proof of the number of scans completed. Please retain this form for at least three years following the RhMSUS™ application date.

STEP 3: VIEW APPLICATION DEADLINES AND TESTING WINDOWS

Applications are accepted on a continual basis and candidates can select their desired testing window during the application. During the online application, candidates must upload a copy of their medical license and attest that they can provide documentation (e.g. copies of earned *AMA PRA Category 1 Credit™*, scan/billing log, etc.) that supports their compliance with the eligibility criteria for the selected pathway.

Candidates are strongly encouraged to complete their applications at least 60 days prior to their desired testing date. There are two (2) testing windows per year – spring and fall. If a candidate misses the deadline, his/her application will be credited toward the next window.

Candidate eligibility will be valid for two (2) consecutive testing windows, and candidates will be permitted one testing attempt per window.

Exam	Application Received By:	Application (Including \$50 Late Fee) Received By:	Testing Window:
Spring 2025	March 31	April 15	May 15 – June 15
Fall 2025	August 31	September 15	October 15 – November 15

STEP 4: VIEW FEE

The certification registration fee includes the processing of the application, examination registration, and one testing appointment.

Category	Fee
ACR/ARP Members Individuals who have been elected to membership and are current on their dues	\$1,500
Non-ACR/ARHP Members Individuals who are not ACR/ARP members	\$1,750
ACR Fellow-in-Training Members Fellows-in-training who have been elected to membership and are current on their dues	\$950
Non-Member Fellow-in-Training Fellows-in-training who have not been elected to membership; must include a letter from their program director, chief of service, or faculty advisor to be eligible for this rate	\$1,025
Late Applications Applications are accepted up to 30 days prior to the opening of the testing window.	\$50
Retest Candidates who fail the examination will receive information on scheduling a second testing appointment from Meazure Learning. All retest fees are non-refundable.	\$100
International Testing Site Candidates can take the examination at an International Test Site for an additional fee collected at the time of scheduling. The fee must be paid in U.S. funds to Meazure by Visa or Mastercard.	\$150

STEP 5: SUBMIT APPLICATION

All eligibility requirements for your selected pathway must be completed prior to application submission. During the application, candidates must upload a copy of their medical license and attest that they can provide documentation (e.g. copies of earned *AMA PRA Category 1 Credit™*, scan/billing log, etc.) that supports their compliance with the eligibility criteria for the selected pathway.

Candidates do not need to save and submit ultrasound scan images. The RhMSUS™ program does not review images.

Application Submission

To submit an application, go to:

https://www.rheumatology.org/?ctl=login&ch_url=https://my.rheumatology.org/rhmsusprereq

- You will be prompted to login or create an online profile. You should record your username, password, and email address as used on the application for future reference and/or access to the system at a later time. You must register with the name that appears on the government-issued photo identification that you will use to enter the testing center to sit for your examination.
- In order to receive important electronic correspondence about scheduling your testing session, please ensure that your email program will accept emails from candidatesupport@meazurelearning.com.

Application Review

Meazure will evaluate and determine candidate eligibility within seven (7) business days of receipt. Only if the application is incomplete will a notice will be issued to the candidate either by email or first-class mail. If the application is not completed within 90 days of submission, the application will be closed.

Candidates can check the status of their application by contacting Meazure Learning at (919) 572-6880 or candidatesupport@meazurelearning.com.

STEP 6: SCHEDULE TESTING SESSION/EXAMINATION

Schedule a Testing Appointment

The examination can take place at Meazure Learning [internet-based testing sites](#) located throughout the United States and also is available through live online-proctored test administration from the candidate's own computer at a time and place of their choosing. Thirty days prior to the testing window, Meazure will send candidates a Notice to Schedule

(NTS) email and will provide directions on how to schedule a testing session through Meazure's online scheduling system. Most test sites will have morning and afternoon testing sessions available.

Meazure will do its best to accommodate the requested test site and date. Seats are filled on a first-come, first-served basis, based on test center availability. Candidates who have not received a

NTS 30 days before the start the testing window should contact Meazure at 919-572-6880 or candidatesupport@meazurelearning.com. • The NTS will provide the URL to access the online test scheduling system to select a testing session based on available seating. You will be able to select from a listing of available testing centers by geographical location and test date.

- You must submit your test scheduling request at least seven (7) days prior to your preferred test date during the scheduled testing window.

Candidates will receive confirmation including exact test location, date, and time via email, which must be printed and taken to the site on the test date. **The candidate must take this confirmation document to the site on the test date.**

Candidates must also bring photo identification with signature to the test site. Acceptable forms of identification include driver's licenses, passports, and government-issued identification cards. Unacceptable forms of identification include gym membership cards, warehouse membership cards, school identification cards, credit cards, and identification with signature only (no photo).

Candidates should arrive at the testing center at least 15 minutes prior to the start of the testing session. Those who arrive late for testing sessions may not be permitted to test.

Reschedule a Testing Appointment

You may reschedule a testing session up to four (4) business days before your testing appointment through the online scheduling system. You may reschedule your testing appointment for either later in the testing window (time/availability permitting) or the next available testing window. A \$50 nonrefundable fee will apply. Not appearing for your testing appointment or rescheduling your exam less than four (4) business days before your testing appointment will be counted as one of your two (2) testing attempts in the 12-month period.

Day of Testing Appointment:	Must Reschedule/Cancel By:
Monday	Tuesday of the previous week
Tuesday	Wednesday of the previous week
Wednesday	Thursday of the previous week
Thursday	Friday of the previous week
Friday	Monday of the current week
Saturday / Sunday	Tuesday of the current week

Cancellations

Candidates are encouraged to reschedule their testing appointment if they are unable to keep their originally scheduled appointment (rescheduling procedure above). If it is absolutely necessary for a candidate to cancel his/her application and testing appointment, the candidate is responsible for contacting ACR and Meazure Learning at least four (4) business days in advance of the testing appointment. Not appearing for your testing appointment or cancelling your exam less than four (4) business days before your testing appointment will be counted as one of your two (2) testing attempts in the 12-month period.

To request a cancellation, follow these steps:

1. Provide cancellation request in writing to ACR.
Program Manager, Engagement & Special Programs
American College of Rheumatology
2200 Lake Boulevard NE
Atlanta, GA 30319
education@rheumatology.org
2. Provide cancellation request in writing to Meazure Learning (candidatesupport@meazurelearning.com).
3. Cancel your testing appointment (if already scheduled) through the online scheduling system. A \$50 nonrefundable fee will apply.

Refunds

Certification fees are nontransferable and generally nonrefundable. No refunds will be considered for candidates who have taken the certification examination, or for those who do not provide the necessary cancellation/rescheduling request to the ACR or Meazure Learning.

If the candidate does not take or pass the examination within the 12-month eligibility period, then the application is closed and the candidate must submit a new application with the required supporting documentation and “first-time” candidate fees.

To apply for a refund, follow these steps:

1. All requests for refunds must be in writing to ACR and must be postmarked at least **30 days prior** to the scheduled test date.
Program Manager, Engagement & Special Programs
American College of Rheumatology
2200 Lake Boulevard NE
Atlanta, GA 30319
education@rheumatology.org
2. Refunds will be issued by ACR for the amount paid minus a processing fee of \$500.

No-Shows

Not appearing for your testing appointment, rescheduling, or cancelling your exam less than four (4) business days before your testing appointment will count as your testing appointment. You will be marked as a no-show candidate and your testing fees will be forfeited.

Reasonable Accommodations

Reasonable accommodations provide candidates with disabilities a fair and equal opportunity to demonstrate their knowledge and skill in the essential functions being measured by the examination. Reasonable accommodations are decided based on the individual's specific request, disability, documentation submitted, and appropriateness of the request. Reasonable accommodations do not include steps that fundamentally alter the purpose or nature of the examination.

Reasonable accommodations generally are provided for candidates who have a physical or mental impairment that substantially limits that person in one or more major life activities (e.g., walking, talking, hearing, and performing manual tasks), have a record of such physical or mental impairment, or are regarded as having a physical or mental impairment.

To apply for reasonable accommodations, the candidate must request the accommodations in the application process and provide documentation that supports reasonable accommodations provided by an appropriate licensed professional on the professional's letterhead. The documentation must include a diagnosis of the disability and specific recommendations for accommodations.

Requests for accommodations must be submitted no later than 45 days prior to opening of the candidate's preferred testing window, and candidates must submit their scheduling request at least 30 days prior to their preferred test date within the testing window. It is recommended that this documentation be submitted at least 60 days prior to the preferred testing date.

For more information regarding reasonable accommodations, please contact Measure Learning (candidatesupport@meazurelearning.com) or ACR (education@rheumatology.org).

National Registry

ACR will maintain a national registry of certificants for public access. Within the candidate registration system, applicants and certificants can choose to be included on this registry. Benefits of allowing your name to appear on the registry will be for verification of credentials by your patients, peers, payors, and the public.

Eligibility Audits

A percentage of candidate applications will be audited to ensure compliance with the eligibility criteria. Applications for audit will be selected randomly. If your application is selected for audit, you will be provided with instructions on how to supply satisfactory documentation that supports your compliance with the eligibility criteria before your certificate is released.

STEP 7: PREPARE FOR EXAMINATION

There are 100 questions and candidates will be given two (2) hours to complete the examination.

Of the 100 questions, 85 are scored questions and 15 are pretest questions that are not scored. Pretest questions are used to determine how well these questions will perform before they are used on the scored portion of the examination. The pretest questions cannot be distinguished from those that will be scored, so it is important for a candidate to answer all questions. A candidate's score, however, is based solely on the 85 scored questions. Performance on pretest questions does not affect a candidate's score.

This test content outline identifies the areas that are included on the examination. The major areas of the test content online are listed below. The full examination outline can be found in [Appendix F](#).

	Domain	Percentage of Exam
Domain I	Recognize Indications for the Use of Ultrasound in Rheumatology	9%
Domain II	Preparing the Patient and Environment	5%
Domain III	Equipment Use and Management	12%
Domain IV	Performing the Ultrasound Examination	21%
Domain V	Interpretation and Integration	26%
Domain VI	Procedural Guidance	19%
Domain VII	Documentation	8%

Examination Rules

ACR and Meazure Learning follow industry standard testing rules as outlined below.

Prohibited Items

Candidates are expressly prohibited from bringing the following items to the test site:

- Cameras, cell phones, optical readers, or other electronic devices that include the ability to photograph, photocopy, or otherwise copy test materials
- Notes, books, dictionaries, or language dictionaries
- Book bags or luggage
- iPods, MP3 players, headphones, or pagers
- Calculators, computers, PDAs, or other electronic devices with one or more memories
- Personal writing utensils (i.e., pencils, pens, and highlighters)
- Watches
- Food and beverage
- Hats, hoods, or other headgear

If Meazure Learning testing personnel determine that you have brought any such items to the test site, they may be demanded and held for an indefinite period of time by Meazure Learning testing personnel. We reserve the right to review the memory of any electronic device that may be in your possession at the testing center to determine whether any test materials have been photographed or otherwise copied.

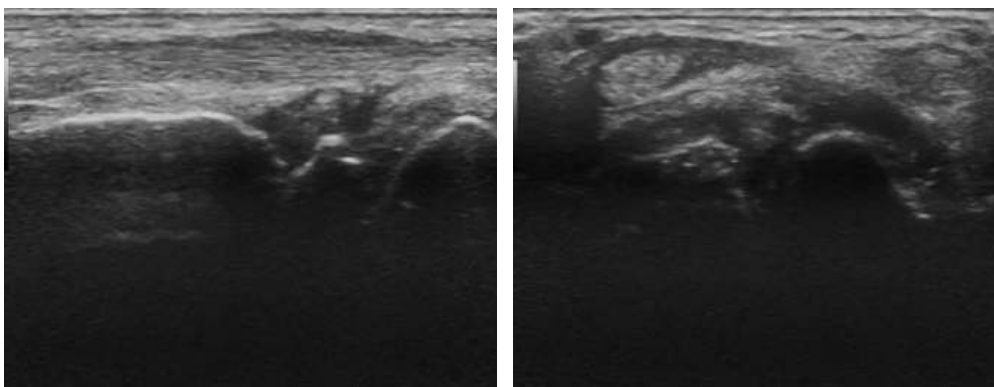
If our review determines that any test materials are in the memory of any such device, we reserve the right to delete such materials and/or retain them for subsequent disciplinary action. Upon completion of our review and any applicable deletions, we will return your device to you, but will not be responsible for the deletion of any materials that may result from our review, whether or not such materials are test materials.

By bringing any such device into the test site in contravention of our policies, you expressly waive any confidentiality or other similar rights with respect to your device, our review of the memory of your device and/or the deletion of any materials. Measure Learning, the examination site, and the test administration staff are not liable for lost or damaged items brought to the examination site.

Sample Examination Questions

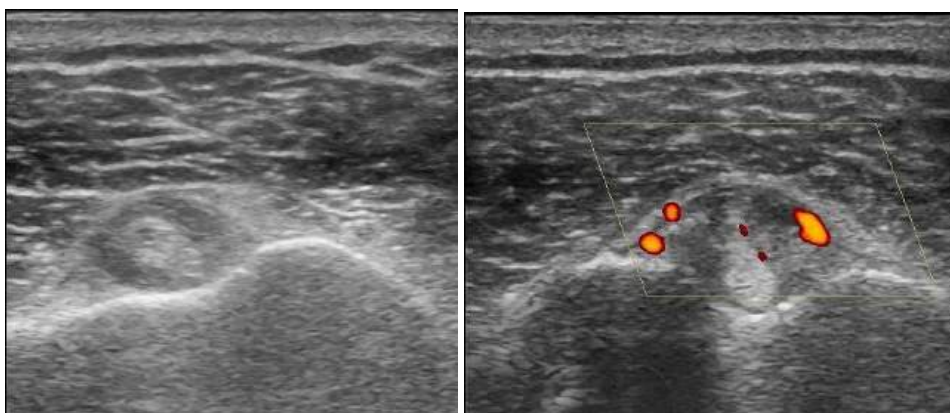
The following questions were taken from the examination question repository and serve as samples of the question type and question content found on the certification examination. Please see the answer key in [Appendix G](#).

1. Both orthogonal views of the dorsal wrist depict which of the following most clearly?



- A. Intercarpal synovial thickening
- B. Radiocarpal synovial thickening
- C. Radio-ulnar synovial thickening
- D. 2nd compartment tenosynovial thickening

2. For the anterior shoulder images shown, which of the following is the most likely cause?



Short axis anterior shoulder, gray scale

Short axis, anterior shoulder power Doppler

- A. Rheumatoid arthritis
- B. Mechanical tendonitis
- C. Glenohumeral effusion
- D. Subacromial bursitis

Demo Test

Meazure Learning offers a detailed walk-through of the entire check-in process and a test taker resource center to familiarize candidates with the computer-based testing environment. Both resources are accessible anytime, anywhere, through

any computer with Internet access. Candidates may access [What to Expect](#) and the [Test-taker Resource Center](#) on Meazure Learning's website. The videos are not intended to be a review of ACR examination content.

STEP 8: RECEIVE EXAMINATION RESULTS

Examination Scoring

Examination results will be mailed approximately six (6) weeks after the close of the testing window. Results will be released only in writing by mail, not by telephone or fax. Examination results will not be released by telephone or fax. Candidates who need to update their mailing address should contact Meazure Learning at candidatesupport@meazurelearning.com.

Certificates

After passing the examination, candidates will receive a personalized certificate, which is suitable for framing, and a wallet card. In the case of an eligibility audit, certificates will be held until the audit is complete.

Eligibility Audits

A percentage of candidate applications will be audited to ensure compliance with the eligibility criteria. Applications for audit will be selected randomly after the close of the testing window. If your application is selected for audit, you will be provided with instructions on how to supply satisfactory documentation (e.g. copies of earned *AMA PRA Category 1 Credit™*, scan/billing log, etc.) that supports your compliance with the eligibility criteria before your certificate is released.

Examination Retakes

Candidates who do not pass the certification examination may retest in the next testing window. Candidates may not take the examination more than two (2) times in any 12-month period. Candidates who need to retest will receive a Notice to Schedule (NTS) email 45 days before the next testing window. During the scheduling process, candidates will be prompted to pay the retake fee (\$100). Candidates will not be officially scheduled for their retake exam until the retake fee has been paid at the end of the scheduling process.

If a candidate does not take the examination for which he/she applied or does not successfully complete the examination within the two (2) consecutive testing windows, the application will be closed and the candidate must submit a new application with the required supporting documentation and pay "first-time" candidate fees.

STEP 9: RECERTIFY

RhMSUS Recertification Update 2024:

Recertifications are on hold as the ACR works with Meazure Learning on creating and maintaining an operable site for recertification. Currently, we do not have a date that the site will be open to accept recertification applications but will notify those eligible for recertification as soon as it becomes available. **This means if you are due or past due for recertification, your RhMSUS certification will continue.**

Appendix A: Pathway 1 U.S. Trained Rheumatologist

Eligibility Criteria and Documentation Requirements

Submit a complete RhMSUS™ application, which includes an attestation that you meet the education, rheumatology experience, and MSUS experience requirements. As part of a random audit you may be required to provide additional documentation after the testing window.

	Eligibility Criteria If applying under this route, you must:	Required Documentation
Career Status	Be a rheumatologist, trained in the United States, who is currently certified in the subspecialty of rheumatology by the American Board of Internal Medicine, the American Board of Pediatrics, or the American Osteopathic Board of Internal Medicine –OR– who has successfully completed a rheumatology fellowship training program approved by the Accreditation Committee for Graduate Medical Education within the two (2) years prior to application submission –OR– who completed rheumatology training prior to the initial 1972 rheumatology subspecialty examination of the American Board of Internal Medicine but who is currently certified by the American Board of Internal Medicine in internal medicine and has a minimum of 12 months experience in rheumatology.	A copy of your current valid certification in rheumatology by the American Board of Internal Medicine, the American Board of Pediatrics, or the American Osteopathic Board of Internal Medicine –OR– written confirmation from your Program Director, Division Chief, or Chair of Medicine stating you have successfully completed a rheumatology fellowship training program approved by the Accreditation Committee for Graduate Medical Education within the past two (2) years prior to the time of application submission –OR– a copy of your current valid certification in internal medicine by the American Board of Internal Medicine, the American Board of Pediatrics, or the American Osteopathic Board of Internal Medicine AND a written confirmation by two (2) board certified rheumatologists (one of whom must be a member of the American College of Rheumatology) attesting to your specialized skills and experience in a rheumatology academic or practice setting.
Medical License	Possess a valid, unrestricted, and unchallenged medical license where you practice. If your license has been restricted, suspended, revoked, or surrendered in any jurisdiction, you cannot be certified, recertified, or admitted to a certification examination. Restrictions include but are not limited to conditions, contingencies, probation, and stipulated agreements.	A copy of your current valid medical license and documentation from the relevant licensing authority that your license is in good standing and without conditions or restrictions.
MSUS Scan and Education	Option 1: Have performed a minimum of 150 musculoskeletal ultrasound scans* within 36 months prior to application submission –AND– have earned 24 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal	A copy/copies of the earned CME certificates –AND– one of the following: ➤ A patient log (see sample log in Appendix I) indicating you performed the specified 150 musculoskeletal ultrasound scans* 36

	<p>ultrasound earned within 36 months prior to application submission where at least 14 <i>AMA PRA Category 1 Credits™</i> come from a single course that includes hands-on scanning practice that meet the requirements of the RhMSUS™ Continuing Medical Education Activity Checklist (Appendix E).</p>	<p>months prior to application submission.</p> <ul style="list-style-type: none"> ➤ A billing log indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application submission.
	<p>Option 2: Have performed a minimum of 150 musculoskeletal ultrasound scans* within 36 months prior to application submission –AND– have successfully completed the Ultrasound School of North American Rheumatologists (USSONAR) Fellow Training Program within 60 months prior to application submission.</p>	<p>A copy of the USSONAR Certificate of Completion –AND– one of the following:</p> <ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application submission. ➤ A billing log indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application submission.
	<p>Option 3: Have performed a minimum of 300 musculoskeletal ultrasound scans* within 36 months prior to application submission –AND– have earned 24 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal ultrasound earned within 60 months prior to application submission where at least 14 <i>AMA PRA Category 1 Credits™</i> come from a single course that includes hands-on scanning practice that meets the requirements of the RhMSUS™ Continuing Medical Education Activity Checklist (Appendix E).</p>	<p>A copy/copies of the earned CME certificates –AND– one of the following:</p> <ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed the 300 musculoskeletal ultrasound scans* 36 months prior to application submission. ➤ A billing log indicating you performed 300 musculoskeletal ultrasound scans* 36 months prior to application submission.
	<p>Option 4: Have performed a minimum of 600 musculoskeletal ultrasound scans* within 36 months prior to application submission –AND– have earned 24 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal ultrasound earned within 10 years prior to application submission.</p>	<p>A copy/copies of the earned CME certificates –AND– one of the following:</p> <ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed 600 musculoskeletal ultrasound scans* 36 months prior to application submission. ➤ A billing log indicating you performed 600 musculoskeletal ultrasound scans* 36 months prior to application submission.

* Ultrasound scans can be limited or complete, diagnostic or therapeutic. For each unique patient/subject/model, no more than one scan per day can be logged.

Musculoskeletal Ultrasound and Education and Experience Summary for Pathway 1:

Number of MSUS scans in last 36 months	24 AMA PRA Category 1 Credits™ earned in musculoskeletal ultrasound	Requires at least 14 AMA PRA Category 1 Credits™ from a single course (meeting RhMSUS™ CME Activity Checklist Guidelines)
150	Within the last 36 months / 3 years	Yes
300	Within the last 60 months / 5 years	Yes
600	Within the last 120 months / 10 years	No

Appendix B: Pathway 2 Non-U.S. Trained Rheumatologist

Eligibility Criteria and Documentation Requirements

Submit a complete RhMSUS™ application, which includes an attestation that you meet the education, rheumatology experience, and MSUS experience requirements. As part of a random audit you may be required to provide additional documentation after the testing window.

	Eligibility Criteria If applying under this route, you must:	Required Documentation
Career Status	Be a rheumatologist, trained outside of the United States, who is certified in the subspecialty of rheumatology by the American Board of Internal Medicine, the American Board of Pediatrics, the American Osteopathic Board of Internal Medicine, the Joint Royal Colleges of Physicians Training Board, or an equivalent certifying body –OR– who has successfully completed a rheumatology fellowship training program approved by the Accreditation Committee for Graduate Medical Education, the Joint Royal Colleges of Physicians Training Board, or a qualified training program according to the regulations of your country within the past two (2) years prior to application.	A copy of your current valid certification in rheumatology by the American Board of Internal Medicine, the American Board of Pediatrics, the American Osteopathic Board of Internal Medicine, the Joint Royal Colleges of Physicians Training Board, or an equivalent certifying body –OR– written confirmation by two (2) board certified rheumatologists (one of whom must be a member of the American College of Rheumatology) attesting to your specialized skills and experience in a rheumatology academic or practice setting –OR– written confirmation from your Program Director, Division Chief, or Chair of Medicine of successful completion of a rheumatology fellowship training program approved by the Accreditation Committee for Graduate Medical Education, the Joint Royal Colleges of Physicians Training Board, or a qualified training program according to the regulations of your country within the past two (2) years prior to application submission.
Medical License	Possess a valid, unrestricted, and unchallenged medical license where you practice. If your license has been restricted, suspended, revoked, or surrendered in any jurisdiction, you cannot be certified, recertified, or admitted to a certification examination. Restrictions include but are not limited to conditions, contingencies, probation, and stipulated agreements.	A copy of your current valid medical license and documentation from the relevant licensing authority that your license is in good standing and without conditions or restrictions.
MSUS Scan and Education	Option 1: Have performed a minimum of 150 musculoskeletal ultrasound scans* within 36 months prior to application submission –AND– have earned 24 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal ultrasound earned within 36 months prior to application submission where at least 14 <i>AMA PRA Category 1 Credits™</i> come from a single	A copy/copies of the earned CME certificates – AND– one of the following: <ul style="list-style-type: none"> ➢ A patient log (see sample log in Appendix I) indicating you performed the specified 150 musculoskeletal ultrasound scans* 36 months prior to application submission. ➢ A billing log indicating you performed 150 musculoskeletal ultrasound scans* 36

	course that includes hands-on scanning practice that meets the requirements of the RhMSUS™ Continuing Medical Education Activity Checklist (Appendix E).	months prior to application submission.
	Option 2: Have performed a minimum of 300 musculoskeletal ultrasound scans* within 36 months prior to application submission – AND – have earned 24 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal ultrasound earned within 60 months prior to application submission where at least 14 <i>AMA PRA Category 1 Credits™</i> come from a single course that includes hands-on scanning practice that meets the requirements of the RhMSUS™ Continuing Medical Education Activity Checklist (Appendix E).	A copy/copies of the earned CME certificates – AND – one of the following: <ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed 300 musculoskeletal ultrasound scans* 36 months prior to application submission. ➤ A billing log indicating you performed 300 musculoskeletal ultrasound scans* 36 months prior to application submission.
	Option 3: Have performed a minimum of 600 musculoskeletal ultrasound scans* within 36 months prior to application submission – AND – have earned 24 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal ultrasound earned within 10 years prior to application submission.	A copy/copies of the earned CME certificates – AND – one of the following: <ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed 600 musculoskeletal ultrasound scans* 36 months prior to application submission. ➤ A billing log indicating you performed 600 musculoskeletal ultrasound scans* 36 months prior to application submission.

* Ultrasound scans can be limited or complete, diagnostic or therapeutic. For each unique patient/subject/model, no more than one scan per day can be logged.

Musculoskeletal Ultrasound and Education and Experience Summary for Pathway 2:

Number of MSUS scans in last 36 months	24 <i>AMA PRA Category 1 Credits™</i> earned in musculoskeletal ultrasound	Requires at least 14 <i>AMA PRA Category 1 Credits™</i> from a single course (meeting RhMSUS™ CME Activity Checklist Guidelines)
150	Within the last 36 months / 3 years	Yes
300	Within the last 60 months / 5 years	Yes
600	Within the last 120 months / 10 years	No

Appendix C: Pathway 3 Rheumatology Fellows-in-Training

Eligibility Criteria and Documentation Requirements

Submit a complete RhMSUS™ application, which includes an attestation that you meet the education, rheumatology experience, and MSUS experience requirements. As part of a random audit you may be required to provide additional documentation after the testing window.

	Eligibility Criteria If applying under this route, you must:	Required Documentation
Career Status	Be a rheumatology fellow-in-training and be currently enrolled in a rheumatology fellowship training program –OR– have completed within 12 months prior to application a rheumatology fellowship training program that is approved by the Accreditation Committee for Graduate Medical Education, the Joint Royal Colleges of Physicians Training Board, or a qualified training program according to the regulations of your country and have a minimum of 12 months experience in rheumatology.	A written confirmation from your Program Director, Division Chief, or Chair of Medicine that you are currently enrolled in a rheumatology fellowship training program approved by the Accreditation Committee for Graduate Medical Education, the Joint Royal Colleges of Physicians Training Board, or a qualified training program according to the regulations of your country.
Medical License	Possess a valid, unrestricted, and unchallenged medical license where you practice. If your license has been restricted, suspended, revoked, or surrendered in any jurisdiction, you cannot be certified, recertified, or admitted to a certification examination. Restrictions include but are not limited to conditions, contingencies, probation, and stipulated agreements.	A copy of your current valid medical license and documentation from the relevant licensing authority that your license is in good standing and without conditions or restrictions.
MSUS Scan and Education	Option 1: Have performed a minimum of 150 musculoskeletal ultrasound scans* within 36 months prior to application submission –AND– have earned 24 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal ultrasound earned within 36 months prior to application submission where at least 14 <i>AMA PRA Category 1 Credits™</i> come from a single course that includes hands-on scanning practice that meets the requirements of the RhMSUS™ Continuing Medical Education Activity Checklist (Appendix E).	A copy/copies of the earned CME certificates –AND– one of the following: <ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application submission. ➤ A billing log indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application submission.
	Option 2: Have performed a minimum of 150 musculoskeletal ultrasound scans* within 36 months prior to application submission –AND– have earned 14 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal	A copy/copies of the earned CME certificates –AND– a letter from your Program Director attesting to a minimum of 10 additional hours of training in musculoskeletal ultrasound –AND– one of the following:

	<p>ultrasound earned within 36 months prior to application submission from a single activity that includes hands-on scanning practice that meets the requirements of the RhMSUS™ Continuing Medical Education Activity Checklist (Appendix E). Additionally, fellows-in-training must have completed a minimum of 10 additional hours of musculoskeletal ultrasound training as approved by the program director.</p>	<ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application submission. ➤ A billing log indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application submission.
	<p>Option 3: Have performed a minimum of 150 musculoskeletal ultrasound scans* within 36 months prior to application submission –AND– have successfully completed the Ultrasound School of North American Rheumatologists (USSONAR) Fellow Training Program within 60 months prior to application submission.</p>	<p>A copy of the USSONAR Certificate of Completion –AND– one of the following:</p> <ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application submission. ➤ A billing log indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application submission.

** Ultrasound scans can be limited or complete, diagnostic or therapeutic. For each unique patient/subject/model, no more than one scan per day can be logged.*

Appendix D: Pathway 4 Physician Assistant or Nurse Practitioner

Eligibility Criteria and Documentation Requirements

Submit a complete RhMSUS™ application, which includes an attestation that you meet the education, rheumatology experience, and MSUS experience requirements. As part of a random audit you may be required to provide additional documentation after the testing window.

	Eligibility Criteria If applying under this route, you must:	Required Documentation
Career Status	Be a physician assistant or nurse practitioner who has a minimum of 12 months experience in rheumatology.	A copy of the earned CME certificate for the completion of the ACR Advanced Rheumatology (either the Adult Track, Pediatric Track, or Combined Adult and Pediatric Track) – OR – written confirmations from your supervising rheumatologist and a board certified rheumatologist or another PA or NP with 12 months experience in rheumatology attesting to your specialized experience in a rheumatology academic or practice setting.
Medical License	Possess a valid, unrestricted, and unchallenged medical license where you practice. If your license has been restricted, suspended, revoked, or surrendered in any jurisdiction, you cannot be certified, recertified, or admitted to a certification examination. Restrictions include but are not limited to conditions, contingencies, probation, and stipulated agreements.	A copy of your current valid medical license and documentation from the relevant licensing authority that your license is in good standing and without conditions or restrictions.
MSUS Scan and Education	Option 1: Have performed a minimum of 150 musculoskeletal ultrasound scans* within 36 months prior to application submission – AND – have earned 24 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal ultrasound earned within 36 months prior to application submission where at least 14 <i>AMA PRA Category 1 Credits™</i> come from a single course that includes hands-on scanning practice that meets the requirements of the RhMSUS™ Continuing Medical Education Activity Checklist (Appendix E).	A copy/copies of the earned CME certificates – AND – one of the following: <ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application. ➤ A billing log indicating you performed 150 musculoskeletal ultrasound scans* 36 months prior to application.
	Option 2: Have performed a minimum of 300 musculoskeletal ultrasound scans* within 36 months prior to application submission – AND – have earned 24 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal ultrasound earned within 60 months prior to application submission where at least 14 <i>AMA</i>	A copy/copies of the earned CME certificates – AND – one of the following: <ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed 300 number of musculoskeletal ultrasound scans* 36 months prior to application. ➤ A billing log indicating you performed 300

	<i>PRA Category 1 Credits™</i> come from a single course that includes hands-on scanning practice that meets the requirements of the RhMSUS™ Continuing Medical Education Activity Checklist (Appendix E).	musculoskeletal ultrasound scans* 36 months prior to application.
	Option 3: Have performed a minimum of 600 musculoskeletal ultrasound scans* within 36 months prior to application submission – AND – have earned 24 <i>AMA PRA Category 1 Credits™</i> specifically related to musculoskeletal ultrasound earned within 10 years prior to application submission.	A copy/copies of the earned CME certificates – AND – one of the following: <ul style="list-style-type: none"> ➤ A patient log (see sample log in Appendix I) indicating you performed 600 musculoskeletal ultrasound scans* 36 months prior to application. ➤ A billing log indicating you performed 600 musculoskeletal ultrasound scans* 36 months prior to application.

* Ultrasound scans can be limited or complete, diagnostic or therapeutic. For each unique patient/subject/model, no more than one scan per day can be logged.

Musculoskeletal Ultrasound and Education and Experience Summary for Pathway 4:

Number of MSUS scans in last 36 months	24 <i>AMA PRA Category 1 Credits™</i> earned in musculoskeletal ultrasound	Requires at least 14 <i>AMA PRA Category 1 Credits™</i> from a single course (meeting RhMSUS™ CME Activity Checklist Guidelines)
150	Within the last 36 months / 3 years	Yes
300	Within the last 60 months / 5 years	Yes
600	Within the last 120 months / 10 years	No

Appendix E: RhMSUS™ Continuing Medical Education (CME) Activity Checklist

These are the requirements that must be met for an activity to qualify as “at least 14 *AMA PRA Category 1 Credits™* from a single course that includes hands-on scanning practice”:

1. All activities must comply with the ACCME Essential Areas and Policies.
2. The activity must offer a minimum of 14 *AMA PRA Category 1 Credits™* and at least 40% of the total CME hours must be dedicated to mentored hands-on scanning practice sessions.
3. For hands-on scanning practice, there must be no more than five (5) learners per faculty member.
4. Each activity must have at least one (1) faculty member that is a rheumatologist.
5. At least 20% of the didactic portion of the course should cover diagnosis of disease pathology.
6. If commercial support is received, the sponsoring organization must attest to:
 - a. Complying with the *ACCME Standards for Commercial Support: Standards to Ensure Independence in CME Activities*.
 - b. Using ultrasound equipment from more than one commercial entity.

* The credits earned outside of the required 14 *AMA PRA Category 1 Credits™* from a single course that includes hands-on scanning practice must be *AMA PRA Category 1 Credits™* specifically related to musculoskeletal ultrasound.

Appendix F: Full Test Content Outline

Type	Description	Percentage
Domain	Recognize Indications for the Use of Ultrasound in Rheumatology	9%
Task	Recognize when ultrasound would assist in establishing a diagnosis by analyzing clinical information and diagnostic testing in order to identify appropriate patients.	
Knowledge	Anatomy	
Knowledge	Pathophysiology	
Knowledge	Ultrasound capabilities and limitations	
Knowledge	Alternative diagnostic options	
Skill	Analyzing clinical and diagnostic information	
Skill	Formulating differential diagnoses that need to be investigated using ultrasound	
Task	Identify patient conditions where ultrasound can evaluate treatment response and disease progression, based on the best available evidence, in order to optimize patient management and education.	
Knowledge	Literature regarding patient conditions as related to the use of ultrasound	
Skill	Exercising professional judgment	
Task	Determine the appropriateness of ultrasound guidance of an intervention by incorporating best available evidence in order to optimize patient management.	
Knowledge	Literature regarding ultrasound guidance	
Knowledge	Anatomy	
Skill	Integrating evidence-based medicine	
Skill	Evaluating the clinical scenario	
Task	Recognize clinical scenarios where ultrasound use is inappropriate, not indicated, or outside the scope of the practitioner's expertise in order to optimize patient management and maintain the credibility and integrity of ultrasound in the field of rheumatology.	
Knowledge	Literature regarding ultrasound use	
Knowledge	Anatomy	
Skill	Integrating evidence-based medicine	
Domain	Preparing the Patient and Environment	5%
Task	Educate the patient by explaining the role of and alternatives to the ultrasound examination in order to establish consent.	
Knowledge	How an ultrasound examination can contribute to patient care	
Knowledge	How ultrasound compares with other imaging modalities	
Skill	Giving clear explanations to patients	
Task	Modify the environment by adjusting ambient lighting and temperature in order to optimize the ultrasound examination.	
Knowledge	How ambient lighting affects visualization of ultrasound images	
Knowledge	How temperature affects vascular flow in tissue	
Skill	Recognizing environmental factors that are conducive to ultrasound	
Task	Position the patient and the ultrasound machine appropriately in order	

	to allow safe and comfortable performance of the examination and to obtain high quality diagnostic images.	
Knowledge	Improper ergonomics as a potential source of injury to ultrasound providers	
Knowledge	Influence of ergonomics on the diagnostic quality of images	
Skill	Positioning the patient and the equipment so that the ultrasound provider has safe and comfortable access to the anatomic area of interest	
Domain	Equipment Use and Management	12%
Task	Select the most appropriate transducer, based on patient and examination factors, in order to obtain optimal images.	
Knowledge	How different transducer footprints affect the field of view	
Knowledge	How different transducer shapes affect distortion at the edge of the image	
Knowledge	How transducer frequency range affects tissue visualization	
Knowledge	How body habitus affects ultrasound wave penetration	
Skill	Selecting the appropriate transducer	
Task	Adjust B-mode settings by applying knowledge of sonographic principles for individual probes and body regions in order to obtain optimal images.	
Knowledge	How frequency, depth, gain, focus, power settings, gray maps affect the quality of B-mode image	
Knowledge	How tissue harmonic imaging, compound imaging, and speckle reduction affect image quality	
Skill	Adjusting B-mode machine settings to optimize image quality	
Task	Adjust Doppler settings by applying knowledge of sonographic principles for individual probes and body regions in order to obtain optimal images.	
Knowledge	How Doppler frequency, power, pulse repetition frequency, wall filter, color priority affect visualization of vascular flow	
Knowledge	Different Doppler modes (power Doppler vs. color flow)	
Skill	Adjusting Doppler machine settings to optimize image quality	
Task	Maintain equipment in good working order by conducting regular inspections and making necessary repairs in order to ensure acquisition of reliable images.	
Knowledge	Normal state of equipment	
Skill	Recognizing signs of ultrasound machine malfunction	
Skill	Recognizing signs of transducer malfunction	
Task	Clean the transducer with a disinfectant after each examination in order to prevent the transmission of infection.	
Knowledge	Procedures for cleaning the transducer	
Knowledge	How available disinfectants may affect the ultrasound transducer	
Skill	Maintaining proper transducer cleanliness	
Domain	Performing the Ultrasound Examination	21%
Task	Access the anatomy of interest by positioning the patient in accordance with published guidelines in order to acquire standardized images.	
Knowledge	Anatomy	

Knowledge	Protocols	
Knowledge	Guidelines	
Skill	Applying anatomical knowledge	
Skill	Positioning patient correctly	
Task	Access the anatomy of interest by placing the probe in accordance with standard practices in order to acquire standardized images.	
Knowledge	Anatomy	
Knowledge	Structured system of examination	
Skill	Applying anatomical knowledge	
Skill	Positioning the probe correctly	
Task	Apply tools including probe maneuvers, patient maneuvers, and ultrasound techniques in order to clarify anatomical structures.	
Knowledge	Probe maneuvers (e.g. heel-toe maneuvers)	
Knowledge	Patient maneuvers (e.g. rotational motion of extremity)	
Knowledge	Ultrasound techniques (e.g. transducer pressure, use of gel)	
Knowledge	How probe and patient positioning affects visualization of the target structures	
Knowledge	How probe pressure can define characteristics of visualized structures	
Knowledge	How distance between the transducer and target tissue will affect the quality of the image	
Knowledge	How the lack of gel may compromise image quality	
Skill	Establishing hand-eye coordination	
Skill	Applying maneuvers and techniques correctly	
Skill	Manipulating transducer position to overcome anisotropy, produce sharp bone contour	
Skill	Manipulating the probe so that the target structure is in plane	
Skill	Manipulating the transducer pressure to establish the underlying characteristics of tissue	
Skill	Floating the transducer	
Skill	Moving the patient to allow dynamic testing	
Task	Acquire a series of images according to published guidelines in order to achieve a complete assessment of a joint region.	
Knowledge	Guidelines and protocols	
Knowledge	Physics of ultrasound imaging (e.g. frequency, gain, depth, focus)	
Knowledge	Mechanics of machine management (e.g. localization of settings)	
Skill	Applying guidelines and/or protocols	
Skill	Applying knowledge of physics pertaining to ultrasound imaging	
Skill	Manipulating the machine (e.g. adjusting settings as needed)	
Task	Identify anatomical structures of interest at each step of the protocol in order to be able to distinguish the normal from the abnormal.	
Knowledge	Anatomy	
Knowledge	Pathology	
Knowledge	Pathophysiology	
Knowledge	Protocol and/or guidelines	
Skill	Distinguishing normal from abnormal anatomical structures	
Skill	Following a protocol or guidelines	

Task	Respond to pathological findings or anatomical variants by acquiring additional views in order to support interpretation.	
Knowledge	Anatomy	
Knowledge	Pathology	
Knowledge	Variants	
Knowledge	Artifacts	
Knowledge	Alternative views	
Knowledge	Alternative techniques	
Skill	Obtaining orthogonal views in response to finding potentially abnormal structures	
Skill	Manipulating the transducer and equipment to use the sonographic characteristics of tissues (artifacts) to help with interpretation	
Skill	Applying anatomical, pathological, and pathophysiological knowledge	
Skill	Choosing alternative views (to protocols) as appropriate	
Task	Apply tools including probe maneuvers, patient maneuvers, and ultrasound settings in order to clarify pathological structures that were identified in gray scale ultrasound.	
Knowledge	Probe maneuvers (e.g. transducer pressure to displace anechoic fluid collection)	
Knowledge	Patient maneuvers (e.g. tendon motion)	
Knowledge	Ultrasound techniques (e.g. appropriate use of Doppler)	
Skill	Applying maneuvers and techniques correctly	
Task	Label all images and clips using appropriate sonographic terminology in order to identify the examined structures.	
Knowledge	Anatomy	
Knowledge	Appropriate sonographic terminology	
Knowledge	Mechanics of machine management (e.g. labeling function)	
Skill	Labeling of images and clips using appropriate sonographic terminology	
Task	Save images and clips using a system that is reliable and that permits retrieval in order to provide for documentation and report generation.	
Knowledge	Options available for data management of ultrasound images	
Knowledge	Regulatory and legal requirements for data storage and retrieval	
Knowledge	Mechanics of equipment management (e.g. archiving function)	
Skill	Using the archiving function of equipment	
Domain	Interpretation and Integration	26%
Task	Interpret ultrasound findings concerning soft tissue rheumatism in accordance with available literature in order to establish an accurate diagnosis.	
Knowledge	Pathology concerning soft tissue rheumatism	
Knowledge	Pathophysiology concerning soft tissue rheumatism	
Knowledge	Physical examination	
Knowledge	Relevant anatomy concerning soft tissue rheumatism	
Knowledge	Specific disease state ultrasound findings	
Knowledge	Ultrasound principles	
Knowledge	Ultrasound instrumentation/operation	
Knowledge	Available literature	

Skill	Interpreting ultrasound images related to soft tissue rheumatism	
Skill	Recognizing abnormal and normal findings of soft tissue rheumatism	
Skill	Recognizing the limits of ultrasound examination	
Task	Interpret ultrasound findings concerning rheumatoid arthritis in accordance with available literature in order to establish an accurate diagnosis.	
Knowledge	Pathology concerning rheumatoid arthritis	
Knowledge	Pathophysiology concerning rheumatoid arthritis	
Knowledge	Physical examination	
Knowledge	Relevant anatomy concerning rheumatoid arthritis	
Knowledge	Specific disease state ultrasound findings	
Knowledge	Ultrasound principles	
Knowledge	Ultrasound instrumentation/operation	
Knowledge	Available literature	
Skill	Interpreting ultrasound images related to rheumatoid arthritis	
Skill	Recognizing abnormal and normal findings of rheumatoid arthritis	
Skill	Recognizing the limits of ultrasound examination	
Task	Interpret ultrasound findings concerning spondyloarthropathy in accordance with available literature in order to establish an accurate diagnosis.	
Knowledge	Pathology concerning spondyloarthropathy	
Knowledge	Pathophysiology concerning spondyloarthropathy	
Knowledge	Physical examination	
Knowledge	Relevant anatomy concerning spondyloarthropathy	
Knowledge	Specific disease state ultrasound findings	
Knowledge	Ultrasound principles	
Knowledge	Ultrasound instrumentation/operation	
Knowledge	Available literature	
Skill	Interpreting ultrasound images related to spondyloarthropathy	
Skill	Recognizing abnormal and normal findings of spondyloarthropathy	
Skill	Recognizing the limits of ultrasound examination	
Task	Interpret ultrasound findings concerning other inflammatory arthritis in accordance with available literature in order to establish an accurate diagnosis.	
Knowledge	Pathology concerning other inflammatory arthritis	
Knowledge	Pathophysiology concerning other inflammatory arthritis	
Knowledge	Physical examination	
Knowledge	Relevant anatomy concerning other inflammatory arthritis	
Knowledge	Specific disease state ultrasound findings	
Knowledge	Ultrasound principles	
Knowledge	Ultrasound instrumentation/operation	
Knowledge	Available literature	
Skill	Interpreting ultrasound images related to other inflammatory arthritis	
Skill	Recognizing abnormal and normal findings of other inflammatory arthritis	
Skill	Recognizing the limits of ultrasound examination	

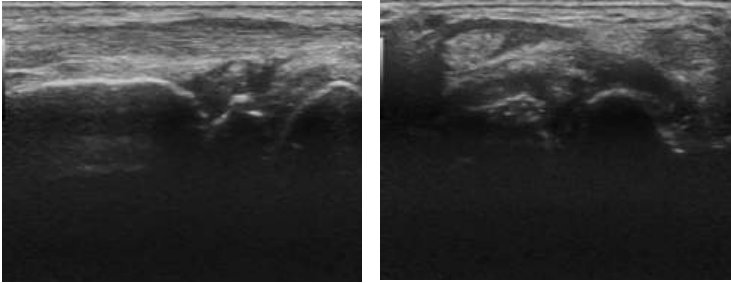
Task	Interpret ultrasound findings concerning crystal-induced arthropathy in accordance with available literature in order to establish an accurate diagnosis.	
Knowledge	Pathology concerning crystal-induced arthropathy	
Knowledge	Pathophysiology concerning crystal-induced arthropathy	
Knowledge	Physical examination	
Knowledge	Relevant anatomy concerning crystal-induced arthropathy	
Knowledge	Specific disease state ultrasound findings	
Knowledge	Ultrasound principles	
Knowledge	Ultrasound instrumentation/operation	
Knowledge	Available literature	
Skill	Interpreting ultrasound images related to crystal-induced arthropathy	
Skill	Recognizing abnormal and normal findings of crystal-induced arthropathy	
Skill	Recognizing the limits of ultrasound examination	
Task	Interpret ultrasound findings concerning osteoarthritis in accordance with available literature in order to establish an accurate diagnosis.	
Knowledge	Pathology concerning osteoarthritis	
Knowledge	Pathophysiology concerning osteoarthritis	
Knowledge	Physical examination	
Knowledge	Relevant anatomy concerning osteoarthritis	
Knowledge	Specific disease state ultrasound findings	
Knowledge	Ultrasound principles	
Knowledge	Ultrasound instrumentation/operation	
Knowledge	Available literature	
Skill	Interpreting ultrasound images related to osteoarthritis	
Skill	Recognizing abnormal and normal findings of osteoarthritis	
Skill	Recognizing the limits of ultrasound examination	
Task	Correlate ultrasound findings with the physical examination, available laboratory tests, and other imaging modalities in order to integrate diagnostic testing into a comprehensive management plan.	
Knowledge	Ultrasound principles and use	
Knowledge	Other available testing/modalities	
Knowledge	Findings of other diagnostic tests and imaging modalities	
Knowledge	Meaning and limitations of other diagnostic tests.	
Skill	Synthesizing available testing to establish diagnosis	
Task	Suggest possibilities for interventions when appropriate, based on the examination findings, in order to support the development of a plan of care.	
Knowledge	Available interventions	
Knowledge	Indications for considered interventions	
Knowledge	Risks and benefits of each intervention	
Skill	Integrating pathology with therapeutic options	
Skill	Correlating examination findings with appropriate intervention	
Task	Refer patients for further evaluation when the practitioner is unable to answer the clinical question using the ultrasound examination in order	

	to optimize care.	
Knowledge	Personal skill level and scope of practice	
Knowledge	Skill levels and scope of practice of other providers.	
Knowledge	Other available modalities for evaluation beyond ultrasound.	
Skill	Arranging further evaluation with other providers	
Skill	Recognizing one's own professional limitations	
Skill	Ordering testing alternatives to ultrasound	
Domain	Procedural Guidance	19%
Task	Determine if ultrasound guidance is likely to improve the outcome of a planned procedure by reviewing findings of the examination in order to maximize the probability of effective treatment.	
Knowledge	Anatomy	
Knowledge	Pathology	
Knowledge	Pathophysiology	
Knowledge	Procedure technique (e.g., needle selection, angle of approach, depth of target)	
Skill	Evaluating the appropriateness of ultrasound guidance	
Task	Choose the anatomical target for the procedure based on the clinical and sonographic evaluation in order to optimize the clinical outcome.	
Knowledge	Anatomy	
Knowledge	Pathology	
Knowledge	Pathophysiology	
Knowledge	Procedure technique (e.g., angle of approach, depth of target)	
Skill	Evaluating anatomical targets	
Task	Position the patient and the targeted anatomic site appropriately in order to perform the procedure.	
Knowledge	Anatomy	
Knowledge	Pathology	
Knowledge	Pathophysiology	
Knowledge	Sonographic windows available with various patient positions	
Skill	Determining the most appropriate position	
Skill	Moving patient into the appropriate position	
Skill	Ensuring patient and operator comfort	
Task	Choose the procedure path based on anatomical factors in order to minimize pain and the risk of complications.	
Knowledge	Anatomy	
Knowledge	Pathology	
Knowledge	Pathophysiology	
Knowledge	How the needle path will affect the visualization of the needle	
Skill	Interpreting an ultrasound image to determine structures to be avoided during the procedure	
Skill	Manipulating the needle during ultrasound guidance to minimize pain and avoid critical structures	
Task	Use aseptic technique as it applies to ultrasound-guided procedures in order to minimize the risk of infection.	
Knowledge	Options for performing ultrasound guidance with aseptic technique	

Skill	Performing needle placement under direct ultrasound visualization while maintaining aseptic technique	
Task	Perform the procedure, based on anatomical access, in order to position a needle in the targeted anatomic site accurately.	
Knowledge	Techniques that can assist in achieving accurate needle placement	
Skill	Positioning the needle accurately in the targeted anatomic site	
Domain	Documentation	8%
Task	State the indication for the ultrasound study in order to document the reason for the examination.	
Knowledge	Appropriate indications	
Skill	Delineating the reason for examination	
Task	Report the technical components and quality of the examination when appropriate in order to clarify the context of examination.	
Knowledge	Standard sonographic terminology	
Knowledge	Obstacles to obtaining high quality images	
Skill	Reporting information regarding the examination	
Task	Report ultrasound findings and conclusions using sonographic terminology in order to document findings clearly and guide further care.	
Knowledge	Standard sonographic terminology	
Knowledge	Anatomy	
Knowledge	Pathology	
Knowledge	Pathophysiology	
Skill	Reporting findings and conclusions	
Task	Store the ultrasound report and images in a secure, retrievable, and reliable manner in order to ensure ongoing coordination and quality of care.	
Knowledge	Storage options	
Skill	Storing the ultrasound report and images	
Skill	Saving images	

Appendix G: Sample Question Answer Key

1. Both orthogonal views of the dorsal wrist depict which of the following most clearly?

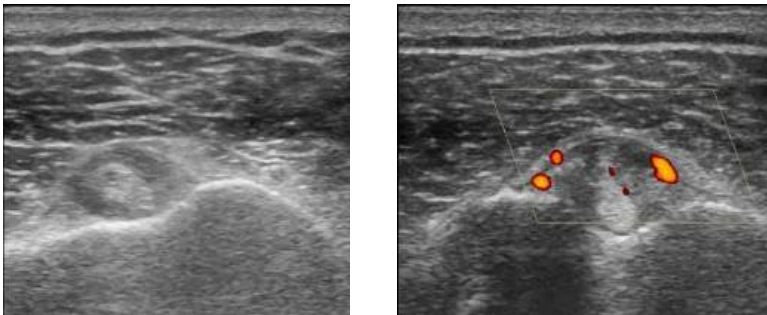


- A. Intercarpal synovial thickening
- B. Radiocarpal synovial thickening**
- C. Radio-ulnar synovial thickening
- D. 2nd compartment tenosynovial thickening

Correct answer: B

Dopazo González N, Ten Cate DF, Swen WA, Mera Varela A, Insua Vilariño SA, Perez-Pampin E, Gómez-Reino JJ, Luime JJ. The most reliable probe position in the ultrasonographic examination of the **wrist** in rheumatoid arthritis. Clin Exp Rheumatol. 2012 Jul-Aug;30(4):566-9.

2. For the anterior shoulder images shown, which of the following is the most likely cause?



Short axis anterior shoulder, gray scale Short axis, anterior shoulder power Doppler

- A. Rheumatoid arthritis**
- B. Mechanical tendonitis
- C. Glenohumeral effusion
- D. Subacromial bursitis

Correct answer: A

Strunk J, Lange U, Kürten B, Schmidt KL, Neeck G. Doppler sonographic findings in the long bicipital tendon sheath in patients with rheumatoid arthritis as compared with patients with degenerative diseases of the shoulder. Arthritis Rheum. 2003 Jul;48(7):1828-32.

Appendix H: Recommended References

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Appendix 1: Sample Patient/Practice Scan Log

[Click here to download a copy of the Patient/Practice Scan Log](#)>

ACR Musculoskeletal Ultrasound Certification in Rheumatology
 PATIENT/PRACTICE SCAN LOG
 INSTRUCTIONS

1. For each unique patient/subject/model no more than one scan per day can be logged (see table below for example).

2. Ultrasound scans can be limited or complete, diagnostic or therapeutic.

Examples:

-CPT 76881: Ultrasound, complete joint (.e. , joint space and peri-articular soft tissue structures) real-time with image documentation

-CPT 76882: Ultrasound, limited, joint or other nonvascular extremity structure(s) (e.g., joint space, peri-articular tendon[s], muscle[s], nerves[s], other soft tissue structures[s], or soft tissue mass[es].) real-time with image documentation

3. You do NOT need to save and submit ultrasound scan images. The RhMSUS™ program does not review images.

4. In case of application audit, a log (without patient identifying information in conformity with the Health Insurance Portability and Accountability Act (HIPAA)), must be submitted for proof of the number of scans completed. Please retain this form for at least three years following the RhMSUS™ application date.

Example scan Log:

Scan Number	Date Performed	Patient Identifier	Type of Scan	Anatomy Scanned	Does Scan Count Towards Total?
1	3/8/2018	Patient A	Complete	Hip	Q
2	3/8/2018	Patient A	Complete	Wrist	O
3	3/8/2018	Patient B	Complete	Hand	@
4	3/9/2018	Patient B	Incomplete	Elbow	@
5	3/9/2018	Patient B	Incomplete	Knee	O
6	3/9/2018	Patient A	Complete	Shoulder	

Applicant Name: _____

Scan Number*	Date Performed*	Patient/Subject/Model Identifier (Must be HIPAA Compliant)	Type of Study/ Examination/ Procedure	Anatomy Scanned
<i>Example</i>	<i>3/8/2018</i>	<i>Patient A</i>	<i>Complete</i>	<i>Hip</i>
1				
2				
3				
4				
5				
6				
7				
8				
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11				
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43				

For each unique patient/subject/model no more than one scan per day can be logged.

* Indicates required field

Appendix J: Exam Preparation Tips

How to Study

ACR encourages candidates to prepare for the examination by using resources such as those listed in this handbook. (A list of recommended references can be found in [Appendix H.](#))

Plan your review methods well in advance of the examination. Think about the study method that is best for you (e.g., individual review, study group, class) and the types of materials that are most helpful (e.g., textbooks, audio or video programs, outlines, memory aids). It may also be helpful to use materials given to you during training activities related to your work.

Managing Test Anxiety

A little anxiety regarding test taking can be helpful because it stimulates and motivates you to perform at your best; however, severe anxiety can hinder test performance. If you know that you frequently experience severe test anxiety, consider preparing yourself for the examination by developing coping mechanisms to make your tension work for you. In addition, the [Test-taker Resource Center](#) link displays a full video showing the test-taking experience, lists FAQs and includes a link to test-taker support. This resource is not intended to be a review of RhMSUS™ examination content.

Before the day of the examination, visualize and rehearse the testing situation. Imagine yourself taking the examination with a positive attitude and focused, but calm, behavior.

Take measures to reduce your stress during the examination. Use deep-breathing techniques and be sure to stretch your muscles periodically. Such exercises can reduce both physical and mental stress. If necessary, take a few minutes to imagine a calm, pleasant scene, and repeat positive phrases.

Do not let the comments or behavior of testing personnel or other examinees (for candidates taking the test in a testing center) make you anxious. As examinees are taking different versions of the examination, examinees will finish at different times – some finishing very early, others taking the full two (2) hours. Examinees who finish more quickly than you may not perform any better than you. Everyone works at his or her own speed. Some of the best test performers routinely use the total allocated time. Remember that (a) there is no limit to the number of examinees who can receive passing scores, (b) there is no bonus for completing the examination early, and (c) you are not competing with anyone else.

Eating well, avoiding too much alcohol, and maintaining a regular sleep pattern for several days before the examination will help you to be physically prepared. Also, on the day before you take the test, collect all the supplies you will need and choose comfortable clothing. Knowing that you are prepared for the test will help to reduce your anxiety.

Finally, your best method for controlling your anxiety is to feel prepared for the test. Designing a study plan well in advance will help you get ready.

Tips for Taking the Examination

- Budget your time well. Because you will have two (2) hours to complete 100 questions, you will want to complete more than half (50) in less than half the time. This is because you will want extra time after completing the full examination to review questions you either skipped or

questions you may have marked for review. Also, allow time so that every hour you can take a minute or so to relax your eyes and stretch your neck and hand muscles.

- Read each question carefully, focusing on what is being asked. If you are uncertain about the answer but nevertheless want to give a tentative response at the time, mark the test question to indicate that you want to review the test question and your answer if time allows. Go back to questions marked in this manner after completing the entire test.
- Read all options before selecting your answer. Always select the best choice.
- Do not overanalyze or try to “read into” a question. Questions are not written to be tricky. Do not assume additional information beyond what is given in the test question. All information necessary to answer the question will be given in the text of the question or scenario.
- Remember that this is a national test. The questions will be based upon an accepted knowledge base. Choose options that you know to be correct in any setting.
- If there are questions including the words “not,” “except,” or “least,” answer with particular care because you will be looking for the exception. These questions involve a reversal of your usual thought patterns.
- Pay close attention to key words such as “best,” “most,” “primary,” or “usually.” These words indicate that other options may at times be correct, but given the wording or situation in the test question, you must judge which option is the best.
- Skip difficult questions and come back to them later. Questions on the test are not ordered by difficulty (i.e., they do not go from easiest to hardest). Also, content areas (the domains) and topics are addressed randomly in questions throughout the test.
- When guessing, use the process of elimination. Treat each option as a true or false statement, and eliminate those that you would not select. Narrow your choices and then make an educated guess.
- Answer every question because there is no penalty for guessing. Go through the entire test, answering the questions you believe you know and skipping the ones you do not. Leave time at the end of the testing period to go back to the questions you skipped or want to review. If you are running out of time, leave a minute or so at the end to complete all of the blank questions randomly. Remember, you have a 25% probability of answering a question correctly by chance alone, so don’t miss any!
- If reading English is difficult for you because English is not your primary language, maximize your time by reading and answering all the shorter questions first. After completing all of the short questions, go back and attempt to answer the longer questions.
- Review the suggested resources listed in this handbook.